August • 50 cents

analog

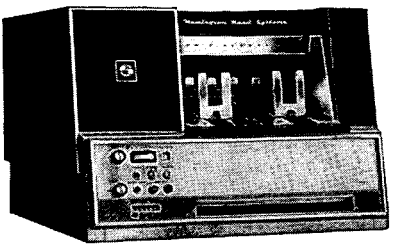
SCIENCE FACT — SCIENCE FICTION

THE TOUGHEST OPPONENT

by Christopher Anvil

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

THE NEW REMINGTON RAND MICROFILM CAMERA IS UNFAIR TO SCIENCE FICTION



First of all, the new FILM-A-RECORD TRADEMARK 555 microfilm camera simply hasn't got enough knobs. Any science fiction fan knows that any machine worth its weight in Saturnian gold has lots of interesting knobs and switches and settings. But Remington Rand feels it must sacrifice **something** to make the FILM-A-RECORD 555 camera the easiest-to-operate microfilm camera on Earth. Which it is.

Then, the FILM-A-RECORD 555 camera doesn't hum, or pocketa-pocketa, or radiate a mysterious green light. It doesn't even have an oscilloscope tube with wiggly lines. But the FILM-A-RECORD 555 **does** photograph as many as 500 check-size documents a minute (both sides at the same time, if you wish). It has three reduction ratios, 25-, 35-, and 42-to-1, all with fumble-free switching from one to the other.

The FILM-A-RECORD 555 camera has Color-Stat, an exclusive Remington Rand feature that compensates for variation in electrical power input, and insures crisp images from even the fuzziest carbon copy.

Only 18" x 23" x 23", the FILM-A-RECORD 555 camera weighs a trivial 26 pounds on the Moon, a hefty 409 pounds on Jupiter, and a mere 155 pounds on Earth.

Let the facts about the FILM-A-RECORD 555 show you how much time, money, and space microfilm will save in your plant or office. Write for our free brochure: WHO, WHAT, WHERE, WHEN, WHY?

MICROFILM CENTER

Remington Rand OFFICE SYSTEMS

Division of Sperry Rand Corporation, Rm. 708A, 122 East 42nd St., New York 17, N. Y.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

analog

SCIENCE FACT ⟷ SCIENCE FICTION

VOL. LXLX NO. 6 • AUGUST 1962

Short Novel

The Toughest Opponent, *Christopher Anvil* 6

Short Stories

The Bramble Bush, *Randall Garrett* 51
Watch the Sky, *James H. Schmitz* 68

Serial

Border, Breed Nor Birth, *Mack Reynolds* (Conclusion) 104

Science Fact

The Big Job of Moving Little Things, *John W. Campbell* 83
The Color of Space 97

Readers' Departments

The Editor's Page 4
In Times to Come 50
The Analytical Laboratory 103
The Reference Library, *P. Schuyler Miller* 162

NEXT ISSUE ON SALE AUGUST 16, 1962

JOHN W. CAMPBELL
Editor

KAY TARRANT
Assistant Editor

HERBERT STOLTZ
Art Director

ROBERT E. PARK
Business Manager

WALTER J. McBRIDE
Advertising Manager

Editorial and Advertising office: 420 Lexington Avenue, New York 17, N. Y.

COVER:
Palomar Mountain Observatory
Courtesy: California Institute of Technology

COPYRIGHT © *1962* BY THE CONDE NAST PUBLICATIONS INC. ALL RIGHTS RESERVED. PRINTED IN THE UNITED STATES OF AMERICA. *Analog Science Fact—Science Fiction is published monthly by The Conde Nast Publications Inc. Editorial and advertising offices: 420 Lexington Avenue, New York 17, N. Y. Executive and publishing offices: Greenwich, Connecticut. I. S. V.-Palcevitch, President; Alfred W. Cook, Treasurer; Mary E. Campbell, Secretary. Second class postage paid at Greenwich, Connecticut, and at additional mailing offices, under the Act of March 3, 1879. Subscriptions: In U.S., possessions and Canada, $5 for one year, $9 for two years, $12 for three years. Elsewhere, $7.50 for one year, $15 for two years. Payable in advance. Single copies: In U.S., possessions and Canada, 50¢. Six weeks are required for change of address. In ordering a change, write to Analog Science Fact–Science Fiction, Boulder, Colorado. Give both new and old address as printed on last wrapper. The editorial contents have not been published before, are protected by copyright and cannot be reprinted without the publisher's permission. All stories in this magazine are fiction. No actual persons are designated by name or character. Any similarity is coincidental. We cannot accept responsibility for unsolicited manuscripts or art work. Any material submitted must include return postage.*
POSTMASTER: SEND FORM 3579 TO ANALOG SCIENCE FACT • SCIENCE FICTION, BOULDER, COLO.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

How to Get More Than Your Share

■ The "fair share" of goods and services a man is entitled to is a wee bit hard to define—largely, of course, for strictly emotional reasons. It's natural for an individual to feel very strongly, and quite sincerely, that the work he does is particularly important to the health, wealth, welfare, defense, education, or whatnot, of the nation, and, therefore, is of particularly high value. He can, almost certainly, point out that without him, and his fellow workers, the nation would collapse. Since any highly organized, highly industrialized nation has this characteristic of acute interdependence, the point is true—but equally true!—for almost all workers.

Perhaps the best way to define an individual's "fair share" is in simple, objective terms. Call all the things he consumes, both in his work, as raw materials, and in his family living—both food, housing, clothes, and entertainment—his "fuel." Call everything he produces, goods, services, and usable by-products—such as old clothes, scrap-turnings, et cetera, both professional and home-living—his "output."

If his "fuel"—in the above sense—consumption exceeds his output *in value,* he is getting more than his "fair share" of the national economy.

The natural difficulty is, of course, that Joe Blow always and inevitably feels that his fuel is much less valuable than the wonderful things he produces. This is true whether he is producing poetry nobody wants to read, painted canvas nobody wants to buy, or steel ingots. He feels that he should get more fuel-value, because of the great value he is sure his product warrants.

And in trying to squeeze more fuel out of the world around him, he feels with complete sincerity that he is fighting for justice.

Since the current cultural philosophy claims there is immense, practically immeasurable value to the prod-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

uct called "being human," the complete bum, who does nothing for anybody, is "fighting for justice" in demanding higher welfare payments, without being required to work for the State agency that pays him, because he is "being human," a said-to-be-valuable product. That is, he "earns" more fuel-value by "being human" than he is being allotted; then fighting for higher welfare handouts is fighting for justice. And if he finds he has to fight for higher allotments by stealing his wants, that is perfectly justified, in his opinion.

However, there's a more interesting method of getting more than the proper share. It goes this way:

Necessarily, the proper share of an industry's income in the national wealth must be computed on the same basis as the individual's; its product must equal in value the fuel it consumes. (If the nation is to grow, of course, the product must exceed the fuel input.)

Now it is impossible, under the laws of thermodynamics, to have a perpetual motion machine; it appears, at first glance, that not only is it impossible for an industry to have a product exceeding its intake, but, under the Second Law, the product must be somewhat less than the intake.

True . . . for physical mass-energy aspects. However, we're talking about the fuel *value* vs. the product *value*. And value has a large information factor in it. The simplest example is the value of an engineering drawing of a true hydrogen-fusion engine. Perhaps fifty cents worth of paper, and one cent worth of ink, so the value of the engineering drawing is, thermodynamically, less than fifty-one cents . . . but the information-value is many orders of magnitude different!

A machinist carves away metal from a billet; his product follows the Second Law of *Continued on page 174*

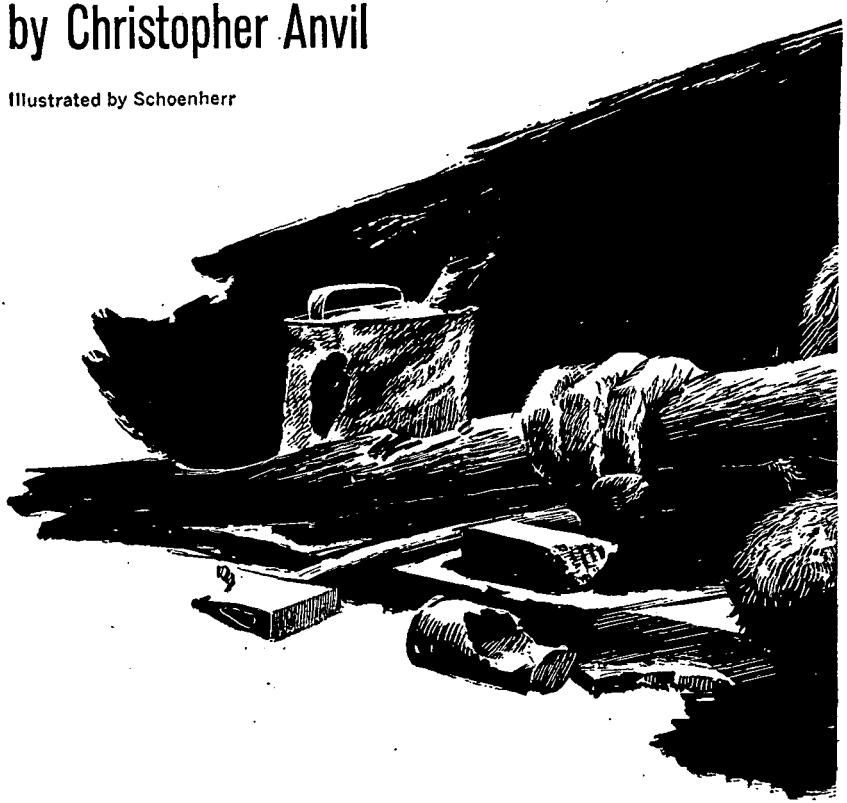
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The Toughest Opponent

I've forgotten who said
"God protect me from my friends;
I can take care of my enemies!"—
and naturally your very closest friend
is hardest of all to overcome...

by Christopher Anvil

Illustrated by Schoenherr



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

■ Colonel James J. Towers, commanding Independent Division III of the Special Effects Team, worked as a planetary trouble shooter, straightening out unruly worlds in the Centran-Earth alliance. The job was dangerous, and the danger did not come only from his enemies.

Towers heard Logan's sharp intake of breath, and the *snap* as Logan's holster-flap whipped open. Towers knew that his second-in-command, just behind him, would have his service automatic in action in a fraction of a second. The scene around them flashed through Towers' mind, his eyes and memory showing him the massive wall of logs and stone, the orderly rows of barracks, and the Centran guards that had been standing on the wall, glancing idly down as Towers' landing-boat settled into place. In that instant Towers realized where the danger must come from.

He abruptly straightened, the cloth of his uniform tightening as he drew his breath in sharply, and pivoted on his heel to face the Centran troops on the wall.

In the same instant, his suddenly keyed-up mind separated from the meaningless gabble a string of words in Centran, and gave him the translation:

". . . Furless, tailless aliens impersonating officers. Shoot the . . ."

As Towers turned, he could see in sharp detail every tiny fold of cloth, and every facial line of the soldiers on the wall, their guns raised and aimed at him.

From Towers' right came the faint *click* as the safety went off on Logan's automatic, and the fusion charges needed only a slight touch on the trigger to release their bolts of controlled destruction.

Towers had just time to notice, in the faces of the Centran troops, a trace of hesitation.

"You there!" he barked in fluent Centran. "You men on the wall! *Who's in charge there?*"

Towers saw the hesitation waver into uncertainty. He realized he had unconsciously gripped Logan's arm in warning, and now released the pressure. Glaring at the Centrans, who still looked at him over raised guns, he roared, "What the devil is this nonsense?"

Abruptly, he ignored the rest of them, and focused his gaze on the uneasiest face.

"Sergeant!"

"S-Sir?" The Centran noncom glanced uncertainly at Towers' insignia.

Towers demanded, "Are those men off-duty?"

The sergeant hesitated.

"*Answer me!*" roared Towers. "Are they off-duty?"

The other Centrans glanced at each other, and lowered their guns unhappily.

"No, sir," said the sergeant.

"What *are* they supposed to be doing?"

"Watch and guard, sir," said the sergeant.

"Watch and guard!" said Towers.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

He stared at the sergeant as if he couldn't believe it. Then he exploded. "By the Great Hungry Mikeril! Get those men back to their posts, or I'll have those stripes of yours nailed to the latrine door, and you'll spend the next six months inside with a scrub brush!"

The sergeant jumped as if he'd been touched with a live wire. He gave Towers a lightning salute, then all but threw the men off the wall in his haste to straighten things out.

Narrow-eyed, Towers looked around. The Centrans on the wall were now earnestly going about their duties. Directly in front of Towers, in the space cleared for landing-boats, was an unhappy Centran captain, his arm raised in a salute. A pace behind stood a paralyzed lieutenant. Towers looked them over coldly.

Beside him, Logan murmured a low oath, and Towers heard the faint slide-snap sound as Logan shoved his automatic back in its holster and shut the flap. Towers looked hard at the Centran captain, then returned his salute.

"S-Sir," stammered the captain, "General Klossig, Military Overseer of the planet, requests that you see him immediately. I can take you to him at once, sir, and if you wish to arrange barracks space for your men—"

Towers glanced at Logan, who said promptly, "I'll take care of it, sir."

"Good." Towers went off with the captain. A backward glance showed him Logan following the lieutenant toward a far corner of the camp.

"Sir," said the captain walking beside Towers, "I'm sorry about that business back at the wall. The men are jumpy. They've never seen Earthmen before. And to tell the truth, this planet is driving us all out of our heads."

"What's the trouble?"

"The natives just won't give up. I was in on the invasion of Earth, and I remember what *that* was like. But at least we could respect our opponents. Here . . . well, it's like fighting humanoid gnats. No matter how many you kill, they never quit. You can't make any treaty with them. They don't catch on. You can't win, and you can't end it. It's—" He shook his head, led the way up a flight of steps, and down the hall to a door marked, "Maj. Gen. Horp Klossig, Military Overseer."

The captain held the door open. "If you'll just step right in, sir. General Klossig wants to see you at once."

Towers passed through a small anteroom, and found himself before a desk stacked with papers. On the other side of the desk sat a powerfully-built Centran in major-general's uniform, irritatedly flipping through a report. On the desk was the nameplate: "H. Klossig, Overseer."

"Ah-h," rumbled Klossig, and loosened his collar with a furry hand. He slammed the report backhanded

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

against the wall, where it hit with a sharp *whack* and fell to the floor. Without looking up, he reached out and jerked a fresh report from the nearest pile. He flipped through it. "Junk, junk, junk," he muttered.

Towers hesitantly cleared his throat.

The general gave an automatic flip of his hand, and slung the report across the room into the fireplace. He jerked another from the pile, glanced at the title, and stiffened. He pressed the report flat on the desk, read for a few moments, and swore in a low voice. He looked up, furious.

Towers saluted, and reported his presence.

Klossig looked blank for an instant, then sprang to his feet. His face lit up. He reached across the desk and gripped Towers by the hand. "I've heard of your Special Effects Team!"

"Not mine, sir. I just have Independent Division III."

"But you're the ones with the motto, 'We'll Find a Way'?"

"Yes, sir."

"Good enough. That's just what I need." Klossig waved a hand at the stack of reports. "The motto of these people is, 'There is no way. It's too hard. Let's all jump off the cliff together. Here"—he snatched up the report he'd just been reading—"take a look at this. Read the heading, then look at that first sentence."

Towers glanced at the heading, which read, "The Invariant Law of Growth and Decline."

Towers frowned, and read the first sentence: "To all societies, as to all creatures, comes at last the realization that the knell of their greatness has sounded, and some outwardly small sign or omen reveals to them the irreversible nature of their imminent decline; just so, to we of the Integral Union, who perhaps with greater percipience than our forbears, and a wiser maturity, may accept as we must with undismayed resignation the portents of the disintegration of our society which are revealed to us by our experiences upon this planet."

Towers had the sensation of being mentally treated with perfumed mustard gas.

"That," said Klossig, "was written by a prominent sociopsychometrodiagnostician on the Planetary Integration Staff. Read some more. It will give you a good idea of morale here. Morale is half my problem."

Towers flipped back through the report. Phrases like "inevitable rise and decline," "the dark forces of destiny," "immutable laws of historical development," "the hour of a culture's foreordained passage into the limbo of the past," flew at him like so many bats out of a cave. At the end came the summary: "And so, like all the societies of the past, at last we find ourselves before the fatal door: Not ours the choice to enter or refuse. Ours only to choose whether we shall go quietly, retaining for a time, perhaps, our dignity if not our power, for the inevitable laws of historical development have

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

laid down their verdict, and there can be no choice save to comply. We can determine not our fate, but only how we accept our fate. As it comes upon us, then, let us accept it quietly, humbly, and with such of dignity as we can muster. For this is enough in the face of the immutable iron laws. It is enough. It is enough."

Towers looked up, and took a breath of air. Leaving the report open to the summary, he handed it back to Klossig. Klossig glanced at the summary, read it, and changed color. He balanced the paper in his hand, as if undecided what he could do to it that would do it justice.

Towers said thoughtfully, "People like that sometimes found schools."

Klossig nodded gloomily, and tossed the paper onto his desk. "He has already. But what can I do with him? To begin with, the fellow has a reputation. And he's not basically bad-intentioned. He's just cracking up under the strain of this planet. The attempt to get a solution to the problem has overloaded his circuits. If I come down on him as I could in the ordinary kind of situation, the whole Planetary Integration staff will resent it. How the devil do I shut him up, and break up his defeatist ideas, without tearing my organization apart in the process?"

Towers considered the question. "Would he still be competent to handle a simpler problem?"

"If it were reasonably straightforward? Yes."

"Why not take him off your problems with the planet, and assign him to the problem of tracing down *the causes of bad morale?*"

Klossig blinked. For a moment, he stood with his chin in his hand, then suddenly he grinned. "You've got it. He'll hang onto the problem till he traces down every cause of bad morale, and sooner or later he'll discover amongst the causes certain reports written by associates of his. The associates will explain that they were only following his lead. But he will be immersed in the new problem and he will think that they are trying to saddle *him* with the blame for what *they* did. Then the sodium shot will really hit the lake. Excuse me just a moment."

Klossig went outside, and Towers could hear him on some kind of personal intercom system, praising the scientist for his good work, and urging him to take on the problem of isolating individual causes of deterioration of morale. In the moments of comparative silence when Klossig was not speaking, Towers could hear a sound he hadn't noticed before—a distant sound of almost continuous rifle fire from somewhere outside.

Then Klossig came back in. "That takes care of that," he said. "But that's just a drop in the bucket. Come on. There's something out here you've got to see."

Klossig led the way out, down the front steps of the headquarters building, and along a well-traveled walk toward a side of the wall that ran at right angles to that where the Centran

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

soldiers had taken aim at Towers and Logan. As they walked, Klossig was saying, "The trouble with life, Towers, is that it presents an endless selection of choices between undesirable alternatives. For instance, if a man wishes to act sensibly, he should first understand the situation thoroughly. But, if he waits till he understands the situation thoroughly, the opportunity for action passes. The result is, we have to make a quick estimate of the most important factors, then act fast while we have the chance. This means we have to take certain elements of the situation for granted. Every now and then, this taking things for granted lands us in a mess. That's what has happened on this planet."

"How so?" said Towers.

Klossig paused at a strip of ground paved with crushed rock, glanced in both directions, and waited while a groundcar bounced past pulling a four-wheeled trailer filled with ammunition cans. Then he started forward, saying, "We assumed all humanoid races would develop the same way—from family to tribe to city to nation. From hunters to farmers to builders. It never dawned on us that we were taking for granted the basis of this process, which is poor adaptation of the race to its environment."

"But that process of development *is* an adaptation of the race to its environment."

"A *roundabout* adaptation. It presupposes the failure of more direct methods of adaptation. What do you suppose happens when a humanoid race is, for instance, so well-adapted to its environment that *the search for food presents no problem?*"

Klossig paused at the foot of the stairs that led to the top of the wall, and glanced at Towers. "That's not just a hypothetical question."

"Well," said Towers, after a moment's hesitation, "it would certainly result in a terrific population growth. But the result would still be sooner or later, that food *would* present a problem."

Klossig started up the steps. "The trouble is, we've always taken it for granted that that problem would turn up sooner, not later. Assuming there is an abundance of food to begin with, what type of social organization will come about?"

Towers thought it over. "Unless there were some powerful predators to contend with, all that would really be needed would be the family, to care for small children."

Klossig nodded. "But remember, if you have the mental picture of a family huddled in a cave in the middle of the wilderness, with another family squatting around a camp fire somewhere on the horizon, you are forgetting the abundance of food. What is going to happen as these families multiply with no restraint save that of occasional plagues and natural disasters?"

Towers frowned. "If the food were really abundant, there would be a—" He hesitated as the picture dawned on him.

"Yes," said Klossig. "Now you see

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

it. The result would be an unprecedented situation—a planetary mob."

"But there *couldn't* be that much food!" Towers regretted the comment as soon as he'd made it, but Klossig merely nodded in understanding.

"The trouble," said Klossig, "is that we automatically take for granted a maladaptation of humanoid to environment. Of *course,* there isn't so much food that fruit cascades continuously from the trees, and small animals present themselves eagerly to be eaten. That's the way it would have to be for *us,* who can eat only certain rare parts of the environment. Here, it's different."

Klossig and Towers were almost at the top of the stairs. Klossig paused to break from the log wall beside the steps a large chunk of thick corky bark. He looked at it with a peculiar exasperated expression, and handed it to Towers.

Towers scowled, and studied it. The bark was heavier than it appeared, dark gray, and apparently homogeneous. He sniffed it, and noticed no scent. He squeezed it, and it yielded slightly to his pressure, then recovered elastically as he loosened his grip. He glanced curiously at Klossig.

Klossig nodded sourly. "That chunk of bark represents nothing but inert matter to you and me. The natives find it highly nutritious, if not tasty." Klossig pointed the length of the wall, and Towers looked at the mass of thick gray bark that covered the big logs. "Think of that," said Klossig, "not as 'bark,' but as so much steak or root crops. There are whole forests of those trees down there. You and I can't eat them. But the natives here *can.* They have a digestion that can cope with just about every plant and animal they come up against. They are *adapted."*

Klossig and Towers climbed to the top of the wall, where there was a flat walk about fifteen feet across, with a parapet not quite waist high at the edge.

Klossig walked to the parapet, and pointed down. "And here," he said, "is the result of that adaptation."

Towers looked down, through rows of spike-bar barriers, so that his gaze traveled down the wall to the sheer cliff on which the wall was built, and down the cliff, where thin clouds drifted by, to the dense forest, small and hazy down below.

On the cliff face, something moved. Towers looked closely, and suddenly realized that a small humanlike figure was climbing the cliff. There was another motion, and Towers saw another figure, to one side, and lower down.

The firing he had heard earlier was louder now, and the wind brought a sharp smell of gunpowder. Towers looked up.

Projecting out from the wall on log struts and braces, a covered wooden platform hung far out over the edge of the cliff, connected to the top of the wall by a swaying catwalk across which two Centran soldiers carried a load of ammunition cans.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

On the platform lay several Centran soldiers, aiming at the wall.

Towers glanced down. One of the little figures he'd seen earlier suddenly jerked, lost its grip, dropped down the face of the cliff, struck it and bounded back, to fall, tumbling over and over, and dwindling in apparent size, till it was lost from view against the hazy forest far below.

Towers glanced at the outthrust platform, where the soldiers had ceased fire. Suddenly one of them pointed. They shifted their position a trifle, and opened fire.

Klossig said, "Population pressure, Towers. On the top of high buttes such as these, there are often forests of old gnarled trees, lichen, moss, and other things useless to most races, but a family or two of these humanoids could live up here."

"And what would they do when the others climbed up?"

"Throw them off. Or get thrown off themselves. What else could they do?"

Towers looked down at the forest far below. "What's it like down there?"

"Alternate paradise and hell. When a plague goes through, it cuts the population to the bone. Then, till the population builds up again, there's overflowing abundance for all. But then, the population *does* build up. There's food for a thousand people to subsist on, but there are twelve hundred people there. The result is chaos, slaughter, and cannibalism. Whoever doesn't shove his neighbor to the wall, gets shoved to the wall himself. Think what it's like down there to make a climb up that cliff seem attractive by comparison."

Towers glanced down at the cliff face. "What happens if one of them *does* get up here?"

"Hell on wheels," said Klossig. "They're savages—as who wouldn't be in that spot?—but that doesn't help us any. They attack on sight."

"What if you meet them down below?"

"Same thing. They see us. *Wham!* They attack us."

"Are they dangerous to well-armed troops?"

"Not in a cleared space, no. In the forests, they're dangerous enough. We've had a number of clashes with them under both conditions, and it was no fun, I can tell you that."

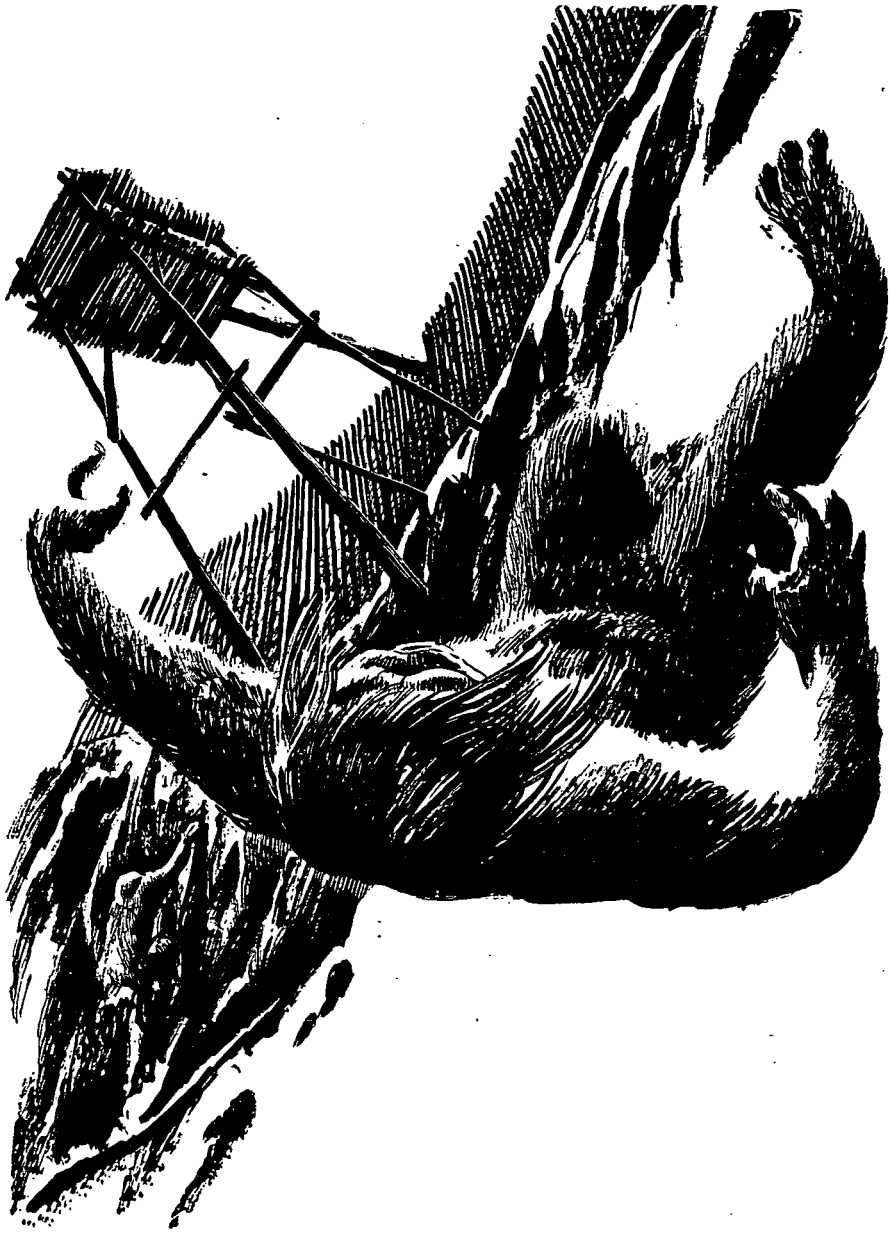
"What's it like?"

"Men, women, and children, take part in the attack. There's no warning. There's no organization. They may use their bare hands, sticks, or rocks. If they get you—then you're dead. There's no mercy. If you get them, that's just a temporary expedition. It doesn't mean much. There are others to step right into the place of those you've killed. All you accomplish by killing them is to relieve the population pressure a trifle."

Towers said, "From the way they act, how do we know they're humanoids. That presupposes some brains on their part."

"They're humanoids, all right," said Klossig. "We've tested individ-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ual captives, and they have brains enough to qualify— as individuals, that is."

"Yes," said Towers slowly. I see. You aren't up against them as individuals."

"Exactly," said Klossig. "That's the whole thing. We are up against them as a mob. We can't make a peace with them. There's no organization to deal with. It's just one huge mob. Now, what do we do?"

Towers looked out at the forested land mass stretching into the distance.

Klossig said, "The purpose of the Integral Union is to unite all human and humanoid races in an interstellar organization for mutual benefit and defense. That's our reason for existence, and the justification for our actions. If *we* don't do it, somebody else may, and not for mutual benefit, either. Now, here we are, up against it. Either we solve this problem, or at the same time we lose a rich planet, and fail a humanoid race that's caught in a truly vicious trap."

From somewhere in the distance, Towers heard a shot. Dimly, the thought went through his mind that the platform thrust out from the wall here was badly located. The outer edge of the wall itself, like the walls of ancient cities back on Earth, did not run a perfectly straight line, but was set out at intervals to allow a view of adjacent sections of the wall. The outthrust platform should have been built twenty feet or so farther to the left, to allow a view of the corner made by the edge of this set-out part of the wall. This thought passed through Towers' mind much as the thought may occur to a man that a picture is a trifle off-center. He would have forgotten it, but at that moment he heard the shout from somewhere along the wall, glanced around, and chanced to look down at the corner of the parapet.

A large hand, covered with coarse reddish-yellow hairs, gripped the edge of the parapet.

What happened next took place almost too fast to follow. A second hand joined the first at the edge of the parapet. Towers reached for his gun, and at the same time shouted a warning to Klossig. The two hands atop the wall tensed, and abruptly a head of wiry tangled hair above two frenzied eyes thrust up into view. Towers had the impression of a mouth full of bared teeth, a shout with an almost physical impact, a fluid blur of motion, and he was knocked back against the parapet.

For an instant, Towers was at the edge of the parapet, a little less than waist-high. Then something hit him, and heaved his legs roughly up and over. A shout of triumph followed him into empty space, and then he was falling, too far out to have any chance to catch the wall.

An instant later, something smashed into the back of his left shoulder like a sack of cement. He flung his arms out, felt himself whirl, then wall and sky pivoted to show him nothing but the cliff and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the sheer drop through the cloud to the forest below.

His left arm was around something solid.

Towers gripped with convulsive strength, his heart pounded, and a second later, he saw that he had hit one of the log struts that supported the outthrust platform.

The triumphant yell was still echoing from the wall above, and Towers' sudden fear abruptly changed into rage. He twisted around, heaved himself up onto the strut, and went up it as an island native on Earth goes up a palm tree. He went from the strut to the platform, from the platform to the catwalk, and from the catwalk to the wall.

Before him was an open ring of soldiers with guns raised, but afraid to use them, as Klossig and a hairy muscular yellow-red form spun in a grapple that whirled them from the parapet to the unprotected inner edge of the wall.

Towers dove for the pair, shot his right arm around the humanoid's neck, clamped his right hand at the inside of his left elbow, and shoved his left hand against the back of the wiry head. Then he tightened the grip with every ounce of strength he had.

Abruptly, he was whirling through the air again, but this time all he felt was a grim satisfaction that the cause of his trouble was locked fast in his grip, its bones and joints straining under the compound pressure.

There was a sudden terrific impact, then blackness.

Towers slowly opened his eyes, and there was a circle of Centrans around him, the wall rising nearby. The massive furry figure of Horp Klossig was bent over him anxiously.

It dawned on Towers that this time he had landed on the inside of the wall. He took a slow breath, and felt carefully for broken bones. He seemed to be all right. Carefully, he rolled to one knee, waited a moment, then stood up.

Klossig steadied him. "Are you all right?"

Towers nodded, then remembered something and looked narrowly around.

Two Centran soldiers were lugging an inert figure up the steps. They reached the top and stepped onto the wall.

As they approached the parapet, they vanished from Towers' view, because of his angle of vision, then reappeared, empty-handed. They glanced at each other with pursed lips, then started back down the steps.

Klossig said, his voice tense with emotion, "Towers, listen—"

Towers noticed the circle of Centran troops standing around.

"Sir," said Towers, "are these men supposed to be on guard duty?"

Klossig looked around. His brows came together. "What the devil is this?" He sent the men scurrying back to the wall, then turned to Towers, and said fervently, "If you need anything, Towers, just ask for it."

"Thank you, sir."

The two men looked at each other a moment, then Towers saluted,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Klossig returned the salute, and Towers set off to get hold of Logan and arrange to bring the first of his men down.

Towers met Logan, coming from the corner of the camp where the Centran lieutenant had taken him to arrange for barracks space. Logan's expression was set and angry. He saluted as soon as he saw Towers, then his expression changed to concern.

"What happened, sir?"

Towers was thinking over what had happened back at the wall, and was trying to figure out how the native had managed to climb up and heave him over the edge before he could even get his gun out of its holster. The memory made him angry, and his voice came out in a rasp that made Logan wince.

"Not a damned thing happened," said Towers. "Have we got the barracks space?"

"Sir," said Logan, coloring, "the Centran colonel in charge of the arrangements has allowed us six double bunks in one corner of one barrack."

Towers had felt nothing but a kind of light-headed vagueness when he got up after the fall, but he was now beginning to ache all over, and on top of that, a hammering headache was just getting started.

"Six double bunks in one corner of one barrack," said Towers tonelessly.

"Yes, sir. And to top it off, he says we will have to expect a certain amount of 'good-natured hazing' from the Centran troops in the barracks. He says they aren't accustomed to associating with 'alien entities'."

Towers' left side and shoulder felt as if a large iron hook was imbedded in it. His head throbbed painfully.

"Where is this Centran colonel?" said Towers.

Logan hesitated.

"*Where is he?*" said Towers.

"I suppose he's still in his office, sir."

"Lead the way."

Logan paled, and started toward the large headquarters building where Towers had seen Klossig. As Logan turned, the sun shone briefly on the cover of something clamped to his belt. Through the headache, it took Towers an instant to realize that that was the cover of the case that held the little transceiver Logan had brought along to keep in touch with Towers' division of the Special Effects Team.

"Wait a minute," said Towers. "Have you gotten any of the men started down here yet?"

"No, sir. With only a corner of a barrack—"

"All right. Order down a dozen men, all controllers or operators, with squads of close-trained wolves, lions, and armored gorillas. Also the biggest superconda we've got in running order. Bring them down as soon as possible in the nearest landing space to that barracks, and move in."

Logan enthusiastically repeated the order into the transceiver, along

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

with detailed instructions for locating the barracks. Then he started toward the headquarters building.

Towers said, "I thought you went right over to the barracks with the lieutenant after we landed?"

"I did, sir. Then after I'd picked out suitable barracks space, he brought me over to fill out forms and took them in to the colonel. The colonel crossed out everything on the forms, wrote in 'six double bunks northeast corner Barracks A12 will be sufficient,' read the riot act, and that was that."

They climbed the stairs of the headquarters building, and Towers' headache developed an effect similar to that of being struck at the base of the head with a sledgehammer at every step. When he could force the words out, Towers said, "What was his reason?"

"He doesn't like our table of organization. I tried to explain to him that a Special Effects Team unit doesn't have as many *men* as most organizations of similar size, but that we have a lot more equipment, so one of our twelve-man companies takes just as much space as the usual company. But I couldn't get started. Every time I opened my mouth, he'd demand to know whether twelve soldiers weren't twelve soldiers regardless what race they belong to. Next he wanted to know how big our men were that they took up so much room. That's how it went."

Towers said nothing as they walked down the hall, and Logan opened a door and stepped aside. Towers stepped in, and nearly walked into a desk set so close to the door that there was room for just one straight-backed chair between it and the door. A somewhat querulous-looking sergeant glanced up as he came in.

"Yes?" said the sergeant, his voice rising.

Between blinding flashes from the headache, Towers looked the sergeant over. When he had memorized his features so that he would never forget them, Towers glanced down at the desk. A little wooden picket fence, with a closed narrow gate, ran from the outer corner of the desk to the wall, so that it was necessary for Towers and Logan to stand in a space about four-and-a-half feet by three feet. Beside the desk where the sergeant sat was a large filing cabinet. Across the room in the corner was a hatstand, and against the inside wall was an overstuffed armchair. At the far wall of the room were two doors, with a water cooler near the right-hand door. The rest of the room was bare.

Towers turned his head to glance at Logan, and was rewarded by a white-hot flash of pain over the eyes.

"This is the place?" said Towers.

"Yes, sir," said Logan. "This is the place."

The sergeant shoved his chair back, stood up, made as if to go to the inner office, turned back, and said sharply to Logan, "I think the colonel has already given you your orders, Major."

Towers' headache abruptly died

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

away to a faint throb. He looked at the Centran.

"Say, 'sir,'" he said, in a grating voice.

"I used the correct form of—"

"I said, say 'sir.'"

There was a brief pause.

"Sir," said the sergeant. The word came out with a squeak.

"Now," said Towers, "go in and inform the colonel that the commanding officer of Special Effects Team Division III, is out here and wishes to speak to him immediately. The matter is urgent."

The Centran turned without a word, and Towers said in a flat voice, "Sergeant—"

The sergeant swallowed, came back, said, "Yes, sir," turned and disappeared through the right-hand door.

A loud voice said from behind the door, "Tell them to sit down and wait."

Logan swore.

Towers smiled.

The sergeant came out, closed the door with reverent softness, and said in a tone of triumph. "The colonel is busy now. You may wait, if you wish, sir."

"I see," said Towers. "You told him the matter was urgent?"

"Yes, sir."

"I believe I heard him say we should sit and wait?"

The sergeant glanced at the single straight-back chair behind the door and smiled briefly, "Certainly, sir. You may sit down if you wish."

"It's not a question of 'wishing' it," said Towers, the rasp returning to his voice. "The colonel invited us to. Is that correct?"

The sergeant frowned. "As a matter of fact, sir, I believe so."

"Did he, or didn't he?"

"Yes, sir. He did."

"Since there's only one chair here, I assume he meant us to use that armchair also?" Towers looked pointedly at the armchair against the wall behind the fence.

"No one but permanent party is allowed back of the gate, sir," said the sergeant positively.

Logan glanced at his watch and said uneasily, "Sir, it's about time for the men to start coming down."

"Yes," said Towers, "but since the colonel may be ready to see us at any moment, and since he invited us to sit down and wait, I think we should do it. Sergeant—"

"Sir?"

"Bring that chair out here." He glanced at the armchair.

The sergeant blinked, and looked at the desk, the little gate in the picket fence, and the narrow space between the desk and the wall.

"But it won't fit," said the sergeant, his voice climbing.

"That," said Towers, "is a matter of perfect indifference to me. I've been invited to sit, and I will sit."

Just then, the sound of a descending landing-boat passed overhead and dwindled away in the direction of the far corner of the camp.

"Sir," said Logan, in a low voice,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"that will be about half-a-dozen armored close-trained gorillas and their controller. Right behind them came a pack of close-trained wolves and *their* controller."

A second landing-boat whined overhead.

"The next one," said Logan, "has about a forty-foot superconda in it, with operator. Sir, when they go in that barracks, all hell will—"

"Exactly why I wish to speak to the colonel urgently. But he tells us to sit and wait." Towers looked at the sergeant, and his voice when he spoke had the crack of a high-voltage discharge. "I said, *move that chair!*"

A third landing-boat passed overhead, and its sound dwindled off in the direction of Towers' barracks.

The sergeant wrestled the chair over to the narrow gate.

Logan mopped his brow with a sweaty handkerchief.

"It won't go through," said the sergeant.

Despite this obvious fact, he tried ineffectually to fit the bulky chair through the narrow opening in the picket fence.

"Lift it," said Towers irritatedly, "or move the fence, or do whatever else you have to, but hurry up."

The sergeant tried to lift the chair over the fence. The chair slipped, fell, and with a loud cracking sound split the fence at the base and knocked it outward.

The sergeant dragged the chair back, propped the fence upright, and then tried pulling the desk back out of the way. The desk was screwed to the fence, the lower screw broke loose, the top screw held, and all the pickets in that end of the fence leaned over at a forty-degree angle, with the baseboard pulled free of the floor and a row of nails sticking out.

The sergeant moaned, went around to the other end of the desk, and tried to swing it around instead. To do this, he had first to drag the filing cabinet out of the way. When he had the filing cabinet out in the middle of the floor, he swung the desk around, and found that it and the filing cabinet together now blocked the chair into the far half of the room. When he made this discovery, something seemed to pop within him. Working like a madman, he now succeeded in blocking himself and all the furniture in front of the colonel's door. Then, desperate, he wrestled the bulky armchair onto the desk, where it tipped off and hit the floor with a crash that shook the room, and was followed shortly by the sound of the filing cabinet tilting back against the wall as the sergeant hastily squeezed past it. The feet of the filing cabinet then slid, and the whole works slammed down on the floor like a dropped boulder.

The outer door opened up, and a neatly-dressed Centran brigadier-general stepped in. At the same moment, the door to the colonel's office came open. The general looked around at the overturned furniture. His face perfectly blank, he went out again. From somewhere outside there came the sound of shouting.

Towers shook his head. "Well, it's

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

too late, now. They seem sort of disorganized in here, anyway. Come on."

He and Logan stepped out in the hall, and hurried outside.

As they neared the barracks, Towers saw a large crowd of Centran troops staring at a deserted part of the camp. In the middle of this deserted section was the barracks to which Towers' men had been assigned. There was nothing exceptional about the appearance of this barracks, except for about twenty feet of oversize python gradually disappearing through the nearest doorway, a gorilla in plate armor walking out a doorway at the opposite end of the barracks, and a yawning lion looking out a window.

In the front of the barracks was a stack of crates about twelve feet high and twenty feet long. A couple of Towers' men were outside the barracks, scratching their heads in apparent perplexity, and glancing back and forth from the heap of crates to the barracks. As Towers approached, they saluted, and one of them said in a carrying voice, "Sir, there are exactly six double bunks in that barracks that aren't taken. How do we fit all this stuff in?"

Towers said, "Wait a little."

There was the sound of another landing-boat coming down, and a few minutes later an electric truck delivered another load of crates in front of the barracks. Half-a-dozen armored gorillas marched past under command of a heavily-armed human. Stepping carefully around the python, they disappeared into the barracks.

Towers glanced around.

The Centran brigadier-general, who had looked in at the chaos in the office a little earlier, was thrusting his way through the crowd. As he approached, twelve huge gray dogs or wolves came out the far door of the barracks and trotted past in single-file, to disappear in the direction of the place where the landing-boats were coming down. From that direction, another half dozen armored gorillas marched past, and into the barracks.

Logan said uneasily, "You don't think we're laying it on too thick, do you?"

Towers glanced in the direction of the landing-place. "Something will snap shortly, and then we'll know. Look there."

The Centran brigadier general was staring at the electric truck, as it trundled up carrying a big transparent case full of water, inside of which a large bulbous creature floated amidst a tangle of flexible arms.

"*Grreat,*" said the general, "hairy master of sin! *Who's in charge here?*"

Towers saluted. "I am, sir."

"What *is* this?"

"Advance Unit I of Independent Division III of the Special Effects Team, landing at the request of Major-General Horp Klossig."

The general walked over, frowning. "You're Towers?"

"That's right, sir."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The general looked around. "Let me see your barracks assignment sheet."

Logan handed the papers to Towers, who handed them to the general. The general leafed through them. "How are you going to get all this stuff into one corner of one barrack?"

"I've been trying without success to get an answer to that question, sir," said Towers angrily. "These sheets of paper show our requirements for space. Six double banks is what we were allotted."

"But this sheet of paper says 'Advance party, twelve (12) men, and equipment.'"

"That means, sir, twelve human beings. Amongst the equipment, which there is no place on that form to specify, is everything else you see here."

The general pointed to the last ten feet of what looked like an oversized python, now disappearing through the doorway. "You call that 'equipment'?"

"Certainly, sir. Equipment shaped as an animal form is often far less conspicuous than the usual equipment. That is a Mark III Superconda with hydronic drive, waterproof seals throughout, twin fusion guns at the nostrils, scraper jaws, and adequate specimen storage compartments just after the muzzle. It can be controlled remotely, or from a sealed compartment in the forward third. Among other things, its extremely useful for scouting dense brush, swamp, and rain forest. It looks like an oversize constrictor. It's actually a highly-specialized vehicle."

"What about that?" The general pointed to a lion trotting past. "That's no vehicle."

"No, sir. But we find that in ordinary close combat, certain animals, when properly trained and disciplined, are hard to beat. By the use of surgical implants at selected nerve-centers, we can cause the animal in training to feel an instantaneous sharp pain. We can also initiate slight impulses for the motion we desire the animal to make. To a degree, the trainer can create a pleasurable sense of well-being. With such immediate prompting and guidance, with swift reward for the right responses, and instantaneous punishment for the wrong response, the animal learns very rapidly. We call this 'close training.'

"For long periods, we put such close-trained animals in a state called 'deep sleep,' in which their bodily functions and food-requirements are depressed to a minimum. When we need them, we awaken them. We need them now. They aren't, strictly speaking, 'men,' but they do require barracks space."

Towers glanced at Logan. "My second-in-command, here, tried to explain this matter to the colonel in charge of allotting barracks space, but he wasn't allowed to explain it. I tried to avert this mess, but the man declined to discuss the matter. Sir, I am here at General Klossig's urgent call. But if colonels are allowed to

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

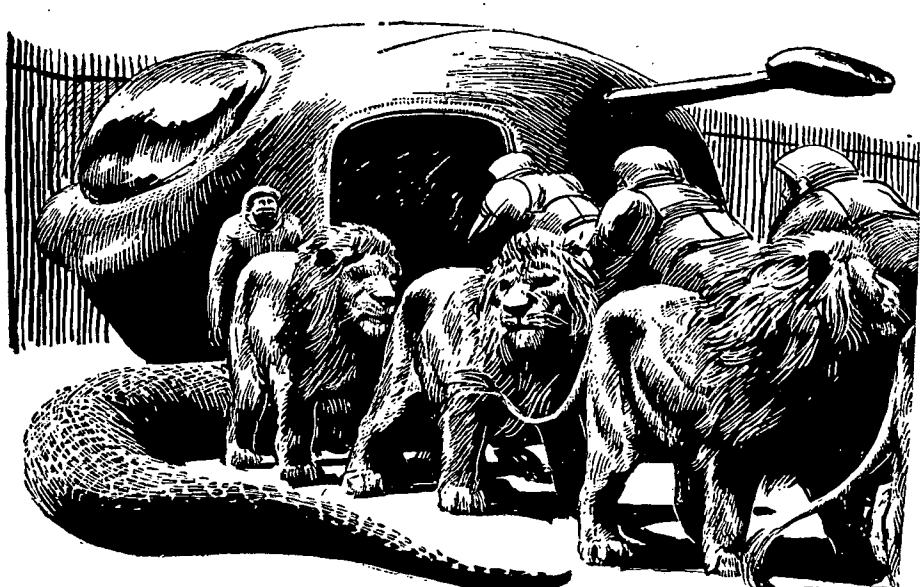
countermand the orders of generals, we may as well all pack up and go home. This mess here is going to snowball rapidly unless one of two things happens. Either my forces will reverse their direction and leave this planet. Or they will be given adequate barracks space."

The general's face darkened. He glanced at the papers again, then said, "All right. Pull your men out of that barracks long enough for the troops to move in and take out their footlockers and bedding. Anybody with the brains of an oyster ought to be able to see that you're going to need plenty of room. I never saw a division yet that could be squeezed into one barrack, and this is no exception." He turned, and gave a sharp blast on a whistle. Towers sent Logan to clear out the barracks.

Approximately forty-five minutes later, Towers found himself in possession of twelve barracks.

"Now," said the general, "I know this isn't enough, but it's the best I can do."

"For our purposes," said Towers, "this will serve very well, sir. But I



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

wonder what effect the sight of our equipment will have on your troops, particularly at night. A close-trained animal, properly controlled, is no danger to speak of—but this can be hard for regular troops to believe."

"I've been thinking the same thing. What if we put up a wall and gate around your section of the camp?"

"Fine. And I can put up an electric fence on the side, to reassure the guards on the wall."

"Good. Anything else?"

"Yes, sir, there is. It would be a big help if we could have a few prisoners to examine."

"Nothing easier. But look out for them. They're tough, fast, and violent. If they get loose, you've got galloping hell on your hands till you blow their brains out."

"I'll remember it. And sir, my talk with General Klossig was interrupted, and there were a few questions I neglected to ask."

"I'll tell you whatever I can."

"Sir, is this the only garrison on this planet?"

"Oh, no. We have a fairly sizable force on the planet, but it's just a dust mote in space compared to the planet's population. Our men are all

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

in inaccessible spots, but every garrison except those on some large islands in the middle of the ocean—where we raise our food—is under continuous attack."

"Sir, is there any need for hurry in solving your problems here?"

The general hesitated. "Yes, there is, I'm afraid. There are two reasons. First, morale is cracking up badly. Second, we are largely dependent on locally-raised food and locally-manufactured gunpowder. Our powder works are cut off from time to time by bad weather. So are our shipments of food. The only feasible transport on the planet is by air or sea, and when our reserves of food and powder get low, as they are right now, it takes only a brief interruption to bring on a crisis."

"I see," said Towers. "Thank you very much, sir."

"You're entirely welcome. If I can help, let me know."

"I will, sir."

The two men exchanged salutes.

Logan came over as the general left.

"Sir, the men are settled, and we can bring down the second unit anytime."

"Good. And if we can get half-a-dozen scouts down in that forest with supercondas, we can get a clearer idea what's going on down there."

"Yes, sir. I'll get them down right away.

"Meanwhile," said Towers, "we're going to want to examine some humanoid prisoners the Centrans will send over. We'd better get construction started on a concrete blockhouse to house them. For the time being, we can fit out a barracks with heavy mesh, and look them over in there."

Towers walked into a barracks which had been hastily fitted out with partitions to serve as his headquarters. One of the rooms had a couple of desks, chairs, several telephones, and a filing case, and was plainly his office. He had just looked the room over, and sat down at his desk, when the door opened up. and a Special Effects Team man said, "Sir, there's a smug-looking Centran captain out here who wants to see you."

Towers frowned. "Send him in."

A Centran with a self-pleased expression came in, saluted, and said, "Sir, it has occurred to the Chief of our Planetary Integration Section that you will need to be briefed regarding the situation here."

"Thank you," said Towers coolly, "I have already been briefed."

"By whom, if I may ask?"

"By your commanding officer, General Klossig."

"Oh, well, but if I may so, sir—"

Towers narrowed his eyes and looked the captain over coldly. The captain frowned, blinked, paused, gave a little laugh, and visibly shifted gears. "Well, then, sir, certainly at least you will want to examine the available literature—"

"It's quite extensive, I imagine?"

"Oh, exhaustive studies have been carried out. The correlation of data must, of course, reach a certain criti-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

cal point before those charged with responsibility for administrative action may be . . . ah . . . educated —"he hesitated and studied Towers' expression—"I mean, sir, *enabled,* to —"

"Educated to the point of being enabled to make intelligent decisions," said Towers helpfully.

"Well, that wasn't precisely what I had in mind, sir, but"—Towers was watching him with a cold, calculating look—"but, I'm sure, sir, that's close enough."

There was a little silence.

Towers said, "I wouldn't want to keep this valuable literature out of circulation."

"Oh, but we have copies."

"Then, by all means, send them over."

The captain blinked. A look of relief passed across his face. "Yes, sir. Thank you, sir." He saluted. Towers returned the salute. The captain faced about and went out. Towers picked up one of the phones on his desk.

"Get me the labor detail."

"Yes, sir." A moment later a new voice said, "Labor detail."

"How is the blockhouse coming?"

"We're laying out the plans, and we've sent for a load of fastset from the supply ship. It won't take us long, sir."

"Good. Let me know when it's finished. What about the barracks?"

"We're working on it now, sir. We should have it ready before any prisoners get here. Major Logan sent for the electric fence, and we think we can get that set up tonight, too, so that by tomorrow, we should have everything in shape."

"Fine."

The door opened up, and the same Special Effects man who had shown in the Centran captain said, "Sir, did you have some Planetary Integration reports brought in?"

Towers scowled. "Already? Yes, send them in."

The Special Effects man glanced back in the hall, nodded, and opened the door wider.

A squad of Centrans came in, each carrying a tall stack of reports, set the reports down along the opposite wall of the room, and went out. As they went out, Logan came in, squinted at the stack of reports, and said angrily, "Sir, did that bootlicking captain from Planetary Integration wish this junk on us?"

A puzzled voice from the phone said, "Sir?"

Towers looked at the heaped reports, and spoke into the phone, "That about covers what I wanted to know. Thank you."

"You're welcome, sir."

Towers hung up, and glanced at the stacks of reports. Then he looked up, to see that the Special Effects man was still holding the door open.

The squad of Centrans came back in again, each with his tied stack of papers. They halted, turned, bent, straightened, turned, and went out empty-handed.

The Special Effects man continued to hold the door open.

Logan swore under his breath.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The Centrans came back in again, left another load of reports, and went out.

The Special Effects man waited a moment, then closed the door.

Logan spat out a livid curse, drew a deep breath, and said, "Sir, listen, there's enough stuff there to last us six months easy if we try to absorb it. And we'll end up with a case of mental constipation that will —"

"I didn't realize there was going to be *that* much."

Now what do we do with it?"

"We certainly can't fight our way through all that stuff. The devil with it." Towers looked away from it. "What's going on outside? Are the Centrans started on their wall?"

Logan turned his back on the reports. "Sir, the Centrans are working like madmen to get that wall built. They've set up searchlights, and they're going to work all night. I've got our men going in shifts, so we'll be all set by tomorrow morning. But, what are we going to do next?"

"Test the prisoners and find out what they're vulnerable to," said Towers. "The Centrans are short on ammunition. Well, as we know, one Selected-Strain yellowjacket takes up less space than a bullet, but it doesn't miss its target. Evasive action and obstructions don't trouble it at all. The first thing we want to do is to ease the strain on the Centran ammunition supply. A few nests of these hair-trigger yellowjackets, halfway up that cliff, should settle the problem with great economy of force."

"Hm-m-m," said Logan. "Yes, we can put the feeder units about halfway between nests, and little higher up, and the bugs will patrol the whole circumference of the cliff for us. Why not do that now, sir?"

"Because first we want to test these natives to be sure of their reactions. It might be, for instance, that a few dozen giant bumblebees will do the job better. There are a number of tests we have to make, then we'll have a better idea where we stand. What we particularly want to avoid is any big crisis before we have a clear idea of what to do."

Logan nodded thoughtfully, "Yes, that's right," he said. "I can take care of the arrangements for the first tests." He looked at Towers and added apologetically, "If you don't mind a suggestion, sir—"

"What?" said Towers, scowling.

"Well, you look a little tired, sir."

It dawned on Towers that he *was* tired. He glanced out the windows, and saw that it was dark. He nodded, thought a moment, and got up. "I guess we can take care of the rest of this tomorrow."

Towers slept long, and, till a little before daybreak, he slept fairly well, considering the number of bruised places it hurt to lie on. Sometime before daybreak, however, he had the impression of something unpleasant just beyond the edge of his consciousness. He woke up, went back to sleep, woke up, rolled over, dozed, woke up again, dozed fitfully, woke up,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

and exasperatedly tried to locate the cause of the trouble. The cause eluded him. He got up in the darkness, and looked out at the gray light just starting to seep over the camp. An edge of the outer wall of the camp, visible from where he stood, was lit by a faint glow, apparently from searchlights shining down onto the cliffs. The room was cold, and in the faint light, the camp outside had a frosty look. In the sky over a nearby barrack, glittered an unfamiliar constellation.

The light from the wall shone dimly on the roof of the barrack nearby, and Towers frowned and leaned forward, trying to make out what appeared to be a short, slanting chimney-pipe thrust out the roof at an angle.

Not far away, a board creaked.

Towers froze. Behind him, the latch of his door clicked.

Towers turned, felt on the stand by the head of his bed, and pulled his service automatic from its holster.

There was a sudden crash.

The door slammed in, smashed against the wall, and sagged by one hinge.

In the hall, dimly lit by the light at the far end, crouched a hairy primitive figure. Its face, half-obscured by shadow peered into the room. It took a little step forward, bent—

Towers squeezed a little tighter on the trigger—

There was a bellow that seemed to burst his eardrums.

The figure blurred.

The thin dazzling line from Towers' fusion pistol vibrated in space before him.

Something slammed him heavily against the wall. There was the smell of burnt flesh, a tinkle of glass, and a sharp crack. For an instant, Towers saw something against the dim square of the sky, then it was gone. He felt carefully along the wall, holding the gun close to him, and snapped the room light on.

Lodged in the window, its back steaming and ruined from the fusion charge, was a humanoid.

Towers swallowed, studied it for an instant, noted the widening pool of blood on the floor beneath it, then stepped out in the hall, and glanced in both directions. The hall was empty.

From the end of the hall, where Logan's room was, came a heavy crash.

Towers glanced up the hall, in the opposite direction, saw nothing, and sprinted down the hall toward Logan's room.

Logan's door was knocked from its hinges, the room was dark, and from inside came a grunt, a thump, and a straining, choking sound.

Towers' felt for the room light, and couldn't find it. He groped his way into the room, reached out, felt a tough, hairy hide—

There was a yell that deafened him, and something smashed him across the side of the head. He saw an explosion of sparks, then was knocked back by a heavy numbing blow in the center of the chest. He hit the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

wall as if he had been thrown out of a second-story window, dropped to the floor instantly, and heard something slam into the wall over his head. He reached out, and his left hand closed around a thick-boned ankle with a coat of wiry hair. He gripped the ankle, levered it up, and with his other hand slammed back the knee of the same leg. The humanoid struggled to recover his balance. Towers lifted harder, and still gripping the ankle with one hand, sprang to his feet as the humanoid went over.

There was a loud crash.

Towers dropped the ankle, jumped for the spot where the humanoid had fallen, and smashed down hard with both heels as he came down.

There was an agonized grunt.

The lights came on.

On the floor lay a humanoid, staring up with unfocused gaze.

Logan, one eye puffed nearly shut, a set of striped pajamas hanging from him in shreds, with blood running from a set of long gashes across his chest, had his right hand on the light switch, and his left arm dangling unnaturally at his side. His unswollen eye studied the humanoid.

"Look out," said Logan hoarsely, "he's going to—"

A hairy hand shot out to grip Towers' left ankle like a vise. There was a fraction of a second's hesitation. In that instant, Towers bent slightly at the knee, brought up his right foot, and smashed his right heel down on the humanoid's head. The hand gripping his ankle relaxed. Towers spotted his gun across the room, and picked it up.

The humanoid started to sit up.

Towers smashed him across the head, and he fell back.

Towers straightened.

The humanoid's eyes came open. He fixed Towers in a momentary unblinking stare, then his eyes fell shut, his head lolled to one side, his muscles relaxed—then abruptly he rolled over, sprang to his feet . . .

Towers shot him.

"Good," breathed Logan.

From somewhere upstairs came a heavy crash, and an unearthly scream, followed by a rumbling grunt, then a heavy pommeling sound, as if a human body were being bounced off a wall like a handball. The barracks shook.

Towers saw a battered flashlight on the floor by an overturned table, grabbed it, snapped it on, and went into the corridor, around a corner, and up the stairs to the second floor. He rounded a corner and found himself facing a short hall.

At the end of the hall, a door was slowly opening.

Towers stepped forward, and felt suddenly dizzy. He eased back around the corner, steadied his gun hand against the wall, and covered the door. The flashlight dimmed, and brightened again.

As he stood, tensely watching, Towers' chest hurt so that it was hard to breath. His left ankle felt as if a vise were methodically crushing it, and every separate bone, muscle, and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

joint seemed suddenly to have developed its own individual ache. He thought dazedly that he should go down the hall to help whoever was in trouble there, but the sensations of his body told him that he was dangerously close to his own limits.

The sound of choked breathing came from the room in front of him, and it dawned on Towers that he could, at least, shout for help. He drew in a painful breath, then paused as a huge humanoid, larger than any of those he'd seen earlier, moved back-first and slowly out the door in the flickering flashlight beam.

In the dim light, Towers could see the humanoid's arms stretched out, as if he were choking someone, and pulling him out into the corridor.

The sense of weakness passed, and Towers stepped forward, to get a clear shot from the side.

The humanoid stumbled backward, and slammed into the wall of the corridor.

For an instant, Towers looked on blankly, wondering which of his men had the physique to shove back one of these creatures by raw strength.

The flashlight lit up more brightly, to show Towers the dark broad chest, huge arms, and massive head of a male gorilla, its big hands clamped around the humanoid's throat, as it forced it down.

There was a brief violent struggle, a grim thrashing, and then the gorilla straightened up. The humanoid remained on the floor.

Towers found the hall light, and snapped it on.

The gorillas saw Towers, and automatically snapped to a posture as close to attention as its physique allowed.

Towers bent over the inert hairy form on the floor. Seen in a good light, it looked considerably worse for wear than Logan did, and it showed no visible sign of life. Towers felt around till he located an artery. There seemed to be a very faint pulse.

He straightened up, and glanced at the gorilla. "Watch. If move—kill."

The gorilla grunted obediently.

Towers went downstairs.

Logan was lying motionless at the bottom of the flight of steps, a gun near his hand. Towers shook him gently by the shoulder.

Logan groaned, and opened his eyes.

Towers said, "Who's in charge of the guard detail tonight?"

"Cartwright," said Logan, sitting up. He picked up the gun.

"Stay there," said Towers.

"No. I'm coming, too." Logan stumbled to his feet.

They went down the hall, past Towers' office to an office marked "Guard and Security Detail." They opened the door. Across the room, stretched out on a cot, lay a tall uniformed figure with first lieutenant's insignia.

Towers and Logan glanced at each other. Towers crossed the room, looked the figure over, and observed no marks or bruises. He took hold of

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

a shoulder and gave it a rough shake.

Cartwright's eyes came open. He groaned, looked at Towers, and abruptly sat up. His glance darted from Towers to Logan.

Towers looked at Logan, "Get the next man on the list."

Logan gave Cartwright a long look, crossed the room, set his gun on the desk, and jerked open a drawer.

"I—" groaned Cartwright.

"Shut up," said Towers.

Cartwright swallowed.

Logan was speaking into the phone, turned so he could keep an eye on the closed door.

Out in the hallway, an alarm bell set up its jarring clatter.

Towers looked at Cartwright. "Name for me the precautions you've taken since you came on duty tonight."

"Sir, we're inside a friendly camp. With guards all around us."

Towers said, his voice grating, "Name for me the precautions you've taken since you came on duty tonight."

Outside, there was a sound of something large and heavy, running swiftly past. An instant later, the sound was repeated. Then repeated again.

Cartwright said, "I put a half-squad of gorillas in each end of the barracks where the captives are tied up. There was a little disturbance there around two o'clock, then everything settled down. I checked everything at four, then around half-past four—everything was quiet. I felt awfully tired and just lay down for a moment. I must have fallen asleep instantly."

The door opened up and a strongly-built man in first-lieutenant's uniform came in, frowned at Cartwright, looked at Towers and Logan, froze, and swallowed.

Logan had set down the phone and aimed his gun at the door, but now put the gun down and picked the phone up again. He hung up the phone, spoke briefly to the lieutenant, then turned to Towers.

"Nobody else heard anything. The Centrans had no trouble on the wall last night."

"That leaves the prisoners," said Towers.

"Sir," said Cartwright earnestly, "the prisoners are guarded."

"I'm going over there now, and see how they're guarded," said Towers. "Wait right here till I get back."

Logan got up, and went out with him. When they were out in the hall, Towers said, "Hadn't you better get that arm taken care of?"

"I want to see these well-guarded prisoners first," said Logan.

They walked out into the gray light of dawn, and up the steps of the barracks a cross the way.

Towers opened the door, and a corporal nodding at a table in a small anteroom shot to his feet. "Atten-*shun.*"

Six massive hairy forms in body armor snapped erect.

"Where are the prisoners?" said Towers.

"In the next room sir."

"Quiet, aren't they?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"They settled down after they got a taste of that wire."

"Let's see them."

The corporal opened up the door, and snapped on a light.

Towers stepped into a long room divided into three parts by a heavy wire mesh fence, with mesh carried across the walls, ceiling, and floor, and covering all the windows. The central portion of the room had a pile of straw on the floor and could be entered by a steel-and-wire door from either end.

"You see, sir," said the corporal, they can't get out unless they spring the gate on this side, or the other gate. Then they have to come out the doors. We're waiting for them."

"Fine," said Towers. "Where are they?"

"Under the straw, sir. That's where they were the last time." He took a long pole from the corner of the room, and rammed it through the heavy mesh into the pile of straw. "Funny," he murmured.

Logan said, "Sir, that wire is stretched out of shape here and there, but I don't see any break."

"Neither do I, but there's one somewhere."

The corporal was getting frantic with his pole. "I *know* they're here somewhere!"

"Look there," said Towers. "At the ceiling. In the far corner."

"It looks like a hole. But the wire isn't broken."

"Sir," said the corporal. "They're gone."

"Open that gate," said Towers.

The corporal unsnapped the lock, and lifted a bar that fastened the gate to its frame at several points. Towers and Logan walked in and looked up. In the far corner was a rough hole in the ceiling, with wire stretched across it.

"Yes," said Towers, studying it, "the edge of the wire on the ceiling was fastened to the wire of that fence with a kind of heavy loop, like a hog-ring. Look there." On the floor nearby lay a thick piece of wire bent in the form of an open U. "They sprang the fasteners, got up between the two pieces the fasteners held together, tore the ceiling boards loose—and then they were upstairs." Towers glanced at the corporal. "Who told you to have half your squad in one end of the barracks and half in the other, with no one outside, or in here watching these prisoners?"

"Lieutenant Cartwright, sir. But about watching the prisoners, sir, if any of us were in the room with them, it seemed to drive them into a fury. And that was getting through to the gorillas. We *had* to get out."

"Was there anything to prevent you from drilling a peephole through the wall, so you could watch them without being seen?"

The corporal opened his mouth, then shut it. He shook his head dazedly.

"Next time," said Towers angrily, "*think.*" He turned, left the prisoner's cage, and with Logan close behind, went outside and back to the headquarters barracks. He paused at the door marked "Guard and Security

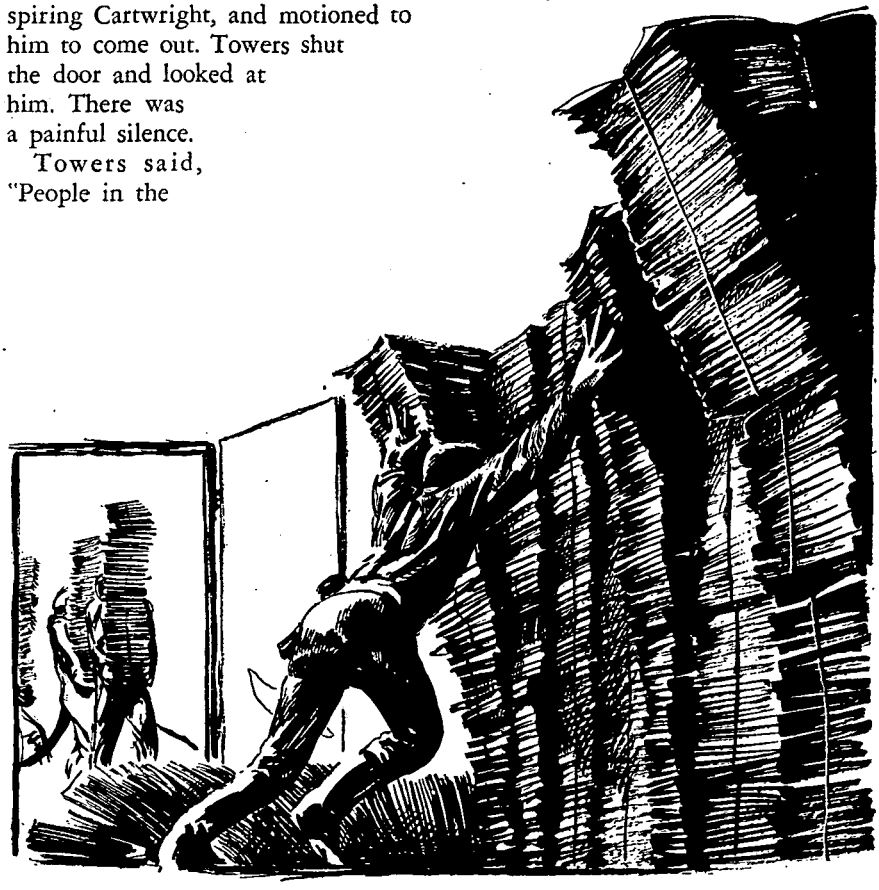
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Detail," turned to Logan, and said, "You'd better get yourself taken care of."

"Yes, sir. I'll go see the medic right now."

Outside, a Centran bugle was rousing the troops in the other part of camp. The day was just starting, and Towers felt as if he'd been rolled down a mountainside in a barrel. He opened the door, glanced at the perspiring Cartwright, and motioned to him to come out. Towers shut the door and looked at him. There was a painful silence.

Towers said, "People in the Special Effects Team are not supposed to be stupid, Lieutenant. We've been on this planet not quite twenty-four hours, and we have had more dislocation from two officers who refused to think than from any other cause whatever. Major Logan and I were almost killed this morning. The Centran position here may break down anytime, so we've got to find a solution as quickly as possible. But thanks to your witless arrange-



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ments to guard the prisoners, and to your going to sleep when you were supposed to be awake, the whole business has been thrown into confusion. What do you have to say for yourself?"

"Sir . . . there isn't anything to be said."

"What was the cause of this trouble?"

"I . . . I went to sleep . . . I—"

"Nuts," said Towers furiously. "*Why* did you go to sleep?"

"I was tired . . . I didn't—" He hesitated.

"Go on," said Towers tensely.

"I didn't think, sir."

"All right. You've hit on the answer. Now, for the love of heaven, start *thinking*. If we don't think in the Special Effects Team, *who will?*"

"Yes, sir. I'm sorry, sir."

"You'll be more sorry yet, before this is over. And every time you're sorry, remember it's because you didn't *think*. And remember it will happen to you over and over again until you learn to *think*. Now, down this hall about halfway is my room. You can recognize it because the door is knocked in, and there's a dead humanoid halfway through the window. Down at the end of the hall is Major Logan's room, which you can recognize because it's a shambles, the door is knocked off, and there's a dead humanoid across a table knocked upside down. Clean up both rooms, deliver the humanoids to the medic for examination, and replace the doors, windows, and anything else that's damaged. Do it yourself, with no help, then report to me. Don't eat any breakfast. Don't eat any lunch. Major Logan and I lost the benefit of our sleep, and you are going to lose the benefit of those two meals. If I learn that you had anything whatever to eat before the evening meal, I will see to it that you wish you had never been born."

"Yes, sir."

"All right, get started."

"Yes, sir."

Towers went into the Guard Detail office. "There's a wire mesh prisoners' cage in the barracks across the way. It's been broken out of. Have it repaired with more and heavier fastening rings to bind the sections of wire together, and put in some arrangement so prisoners can be watched unseen. See that the prisoners *are* watched unseen. Put a patrol outside, just in case. Also, there's a humanoid upstairs in this building, with a gorilla on guard. The humanoid is either dead or playing possum. If he's dead, blow his head off just to be on the safe side, and deliver the body to the medic for examination. If he's alive, stick him back in the cage. And see that he's *watched.*"

"Yes, sir."

"Then check up on exactly how the prisoners got out, and let me know."

"Yes, sir. I'll take care of it as soon as possible."

"Good."

Towers went back to his room, washed, dressed, went out to eat breakfast, then walked back to his office. He felt like a man after a two-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

week binge, but he had accomplished this overnight, and without benefit of any pleasure in the process.

As he entered the office, Logan, one arm in a sling, was just putting down his telephone.

"Sir," said Logan. "The Centran ammunition supply has been cut."

Towers shut the door, and nearly fell over a tied stack of Centran reports that lay tipped over on the floor. Logan sprang up, and heaved the stack back against the wall. The whole long row of stacks teetered precariously, and two at the end tipped out and fell over with a heavy crash.

Logan spat out an unprintable oath. "That thing," he added, "was tipped over when I came in, and I no sooner sat down then it fell over again. I'll—"

Towers said, "Wait a minute. The trouble is, when they brought these reports in, they just *set* them here. They should have *leaned* them against the wall. Or at least set them close enough to it so—" he heaved a stack upright, and leaned it back. He heaved the other stack upright, and wrestled it into place. Everything now seemed to be in order, save that the whole row was slumping a little toward the door. Towers scowled, then shrugged. "Good enough. Now, what was that about the Centran ammunition supply?"

"A bunch of humanoids got into one of their biggest munitions works, and raised so much hell that the garrison got excited and forgot where they were. One thing led to another, and the place blew up."

Towers pulled out his chair and sat down.

"What did that take out?"

"Thirty per cent of the Centran ammunition capacity. They'll feel the pinch in three or four days, which is about all the local reserves are good for."

Towers' phone rang, and he picked it up.

"Sir," said a voice, "you wanted me to let you know when the blockhouse was finished. It's finished now, sir, and ready to take the prisoners."

"Good. Thank you." Towers hung up and glanced at Logan. "The blockhouse is ready. Now all we need are some prisoners to put in it."

Logan said exasperatedly, "Well, at least, the Centrans ought to be able to give us some more of *them*."

"Call up and see. We may still have one alive, anyway." Towers called up the Guard Detail.

"Yes, sir," said a voice on the other end. "That one upstairs with the gorilla watching was alive, all right. When we went to pick it up, it almost put Private Higgins through the wall. That big gorilla on guard went to work before we could stop him, bashed the humanoid through the fiberboard, and wrapped him around an overhead beam. Doc's working him over now. About how they got out of the barracks, sir—"

"Wait a minute. Doc's working *who* over now?"

"Sir? Oh, Higgins."

"What about the humanoid?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Dead. As you suggested, sir, we blew his head off for good measure. I guess that takes care of the four of them."

Towers looked at the phone. "The *four* of them?"

"Yes, sir. The one dead in your room, the one dead in Major Logan's room, the one we killed, and the one Doc was dissecting when we got Higgins over there."

"Wait a minute. Do you mean to say there were *four* prisoners?"

"Yes, sir. I have the receiving sheet right on my desk here. There were four male humanoid prisoners, all captured yesterday, delivered at 10:58 last night, signed for by Cartwright, and also by Meigs, private in charge of temporary detention barracks."

Towers glanced at Logan, but Logan was busy on the phone. Towers thought a moment, then said, "Listen, I think you've counted one of the dead humanoids twice. One was killed in Logan's room, one in my room, and one upstairs. Cartwright had orders to take the one in Logan's room and the one in my room over to the medic for examination. I think you saw the humanoids in those rooms, then had the fight with the one upstairs. Meantime, Cartwright brought the one in Logan's room over to the medic. Then you took Higgins over there, saw the one Cartwright had brought over, and counted it again."

"Then one's still loose. I'll get right at it, sir."

"How did they get out of the detention barracks?"

"Through a join in the wire, through the first-floor ceiling, up through the second-floor ceiling, and out the roof."

"O.K. Find out about that other humanoid."

"Yes, sir."

Towers hung up. Logan said, "Sir, the Centrans say they can supply us with all the humanoids we want. But it will take a half-hour or so before they can get us one. What they do is to let him climb up to the top of the wall, then knock them over the head with a big hammer, grab them with hooks, and strap them up."

Some kind of oddly-shaped bug droned past Towers' head, distracting him for a moment, then settled on the opposite wall.

"Well," said Towers, bringing his mind back to business, "the blockhouse is finished, and we'll have some prisoners in a little while. Better get the arrangements for testing set up."

"I've taken care of it, sir. They were all set up even before the blockhouse was ready."

"Good work," said Towers approvingly.

The phone buzzed, and he picked it up. "Hello?"

"Sir, the first of the scouts is back from observing that jungle down below. We thought you'd want to hear his story."

"Fine. Send him in." Towers turned to Logan. "They're sending in one of the scouts. And just incidentally, Logan, how many of those humanoids did *you* think we had around this morning?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Well," said Logan. "There was a dead one halfway through your window when I got back from getting patched up. There was the one in my room. And there was that terrific fight going on upstairs after those two got finished. That makes three."

"The guard detail has record of four being delivered to us last night."

"*Four.*" Logan glaced around, the hair at the back of his neck seeming to bristle.

There was a respectful knock on the door, and a tired-looking Special Effects lieutenant of about average height came in, and saluted. "Sir, second Lieutenant James Andres, in charge of Scout Unit One—two Wings and six Mark II Supercondas."

"You were down in the forest."

"Yes, sir. It's actually more of a jungle down there—the growth is luxuriant. Sir, we were supposed to observe particularly the humanoids. When we got down, it was approaching dusk, and as it got light this morning we had to pull the 'condas back into a swamp. The jungle growth is so thick that from the Wings it's next to impossible to see what's going on, while from the supercondas we had a splendid view, but were attacked on sight by any humanoid that happened along. What I mean, sir, is that I can give a fairly clear report of what we saw, but during daylight we couldn't get into the place where the humanoids were really thick, without creating such an uproar that it defeated our purpose."

Towers nodded. "Go ahead. I'd like to hear your impressions."

"Sir, the place is a hellhole. There are humanoids all over, crouching on limbs, behind tree trunks, and hiding in the brush. We saw them eat just about everything in sight, but they seem to prefer—from our short observation—a kind of berry on a thorny vine that grows up high into the trees."

"They spend most of their time eating?"

"No, sir. That just seems to be their objective. They actually spend most of their time creeping up on each other, and bashing each other's brains in. When they're not attacking, they're looking over their shoulder for fear somebody's going to attack *them.*"

"That's in the daytime?"

"Yes, sir."

"How is it at night?"

"They climb trees, hide under fallen logs, or somehow get out of sight. Most of them, that is. We did see some of them work their way up a giant tree at night after what we think was an insect nest of some kind. They broke off the limb the nest was on, then came down again."

"Eat the insects? Or find honey on the nest?"

"No, sir, they just threw it down. But it landed out of sight, and it may be that later on they got it. The way we figure it, sir, is that the nest belonged to some pest that couldn't see at all at night, and they were getting rid of it. The humanoids seem to have some night vision. Only a few seem to have the courage to move

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

around much, but we noticed a number waiting to brain anyone that did."

"Cannibalistic?"

"Not that we saw last night, sir. The idea seems to be, to wait till somebody else has a delicacy, then kill him and eat the delicacy. The place seems to abound in food. We saw them eat chunks of thick bark right off the trees. But the foods they really like seem to be rare."

"What happens to any humanoids that are sick, or injured?"

The scout lieutenant shook his head. "All the ones we saw were healthy. I imagine any sick or injured ones get killed off pretty fast. The strange part is, with all this fighting amongst themselves, they unite the instant they spot anything different. There are scavengers birds that come down at night, and live on the dead from the previous day. One came down a little too early last night, before it was really dark, and a bunch of humanoids tore it to shreds. Whenever they spotted us, they attacked us, even though one superconda—even if it had been just a big snake—could have slaughtered dozens of them before being finished. And yet, we were glad to get out into the swamp. There are so many of those humanoids, they are so fast and so violent, and their reactions seem to be on such an instinctive basis, with no time wasted on thought, that to tell the truth they scared the living daylights out of us; and some of those supercondas have the outer camouflage casing around the snout pretty well beat up. It's an awful place down there."

Towers imagined a jungle alive with creatures like the ones he and Logan had fought with that morning. "Yes," he said, "it must be."

"In order to get some good out of the trip, we each jammed a couple of humanoids into the forward sample pouches on the supercondas. But we'd better do the rest of our scouting remotely, by planting hidden TV and radio pickups down there. We can use the 'condas to do that at night."

"Good. Now, did you say, you'd brought up some humanoid prisoners?"

"Yes, sir. A dozen, all told."

"Fine. Go down the hall to the Guard Detail office, and arrange to unload the humanoids under guard, half at the blockhouse, and half at the detention barracks, as soon as you can."

"Yes, sir. I'll do that right now." The lieutenant saluted, and went out.

Towers and Logan glanced at each other.

Logan said, "I don't care much for the sound of this. We're up against a kind of situation I don't think we ever ran into before. These humanoids aren't stupid, actually, but they're completely oriented toward combat. They all gang up on any different life form that raises its head. When they don't have any alien life form to fight, they fight each other. It's an ingrained instinctive-traditional reaction backed up by the sheer mechanics of the situation. They've *got* to fight, because with unrestricted reproduction there just can't be enough

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

food for all. But as long as they *do* fight all the time, every man's hand against every other man's, they can never develop any organization or technological skills worth mentioning. They'll just go by a process of natural selection getting tougher, faster, and trickier, till they reach the limit, and the slaughter will just go on by itself with no more sense or reason than a chemical reaction. But how do we end it? There must be plenty of surplus birth rate down there, and we have a huge mass of these humanoids to contend with."

Towers watched the odd-shaped bug he'd seen earlier buzz across the room, and hover outside the door of a small storage closet in the corner of the room. The bug hovered by the crack at the top of the door, its buzz rising to a whine, and dying away again. Towers stared at it in puzzlement, then with an effort dragged his mind back to the problem at hand.

"Maybe," he said, "these tests will give us some ideas."

The first series of tests, carried out at the specially-fitted blockhouse, took all afternoon, and were designed to find which of a great variety of available insects and arachnids the humanoids might be most susceptible to. The tests showed conclusively that the humanoids were untroubled by—among others—gnats, flies, ticks, and several sizes and varieties of mosquitoes, all of which lost interest after a taste of humanoid blood. The humanoids seemed vaguely aware of attacking yellow jackets, hornets, giant bumblebees, and tarantulas, which they squashed absent-mindedly when they chanced to notice them. The only thing that seemed to cause the humanoids any real trouble was a selected strain of scorpion, which succeeded in raising a dark pink bump about half the size of a man's little fingernail, which disappeared in an hour.

Towers and Logan, considerably depressed, went through the motions of eating a hasty supper, paused briefly at their office, then watched tests designed to determine the limits of the humanoid's tolerance for various foods. These tests revealed that the humanoids could eat all bark, root, branch, leaf, grass, moss, fungus, and lichen samples given to them, together with leather, rubber, cotton, wool, synthetic fiber, chalk, every kind of normal food, spice, and flavoring in the camp, plus soap, grease, wallboard, a variety of plastics, and engine oil. The humanoids drew the line at gasoline, which made them sneeze, but gnawed and sucked on nails, tin cans, rocks and the concrete walls of the blockhouse.

The medic now reported that he had examined the specimens given him for dissection, had dulled a large number of knives in the process, but had succeeded in finding out that the humanoids had an exceptionally powerful digestive system, including a small gizzard, a "selection chamber" where food was apparently split into digestible and occasional undigestible portions, and a "bypass" by which

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the rare nondigestible or poisonous portions were routed around the ordinary digestive system through several valves and disposed of with no wasted effort. The medic also mentioned that he had passed along portions of the humanoids' tissues for chemical analysis, and gotten back a report that the tissues contained an unusually large amount of silicon. The medic hazarded the guess that just as certain silicon coatings were tougher than ordinary organic coatings, so the body tissue of the humanoids was tougher than ordinary tissue.

In a state bordering on shock, Towers and Logan went back to their office. Nothing much had changed here, save that the piles of Centran reports were gradually slumping more steeply, and the odd-looking bug was now perched over the door of the storage closet, giving an occasional buzz from time to time. The guard detail reported no sign of the missing humanoid, and Lieutenant Cartwright, looking exhausted, reported that he had cleaned up and repaired Towers' and Logan's rooms, had eaten no breakfast or lunch, but had eaten some supper, and he was ready for the next stage of his punishment, which he knew he well deserved.

Towers told him to report back the next morning, then sent him to bed, and looked over a report from one of his men on possible ways to slow down the attacks on the Centran camps. He approved for immediate action the measures it suggested, then after an half hour of futile wrestling with the problem, he turned out the lights, and he and Logan went off to try to catch up on sleep.

Towers was in the middle of a nightmare, with half-a-dozen escaped humanoids lurking all over the barracks as he stood paralyzed in a hallway, listening for telltale signs, when there was a crash that shook the room and jolted him awake. Towers was out of bed, gun in hand, crouched in a corner of the room, with his heart hammering and the blood pounding in his ears, before he was fully awake. He heard a door come open somewhere, there was a thunderous roar, a shout, a crash, the sound of running feet, another roar, the sound of splintering wood, a yell, and a hideous worrying sound.

A lifetime of devotion to duty moved Towers across the room and out the door into the dim-lit hallway before he had time to really consider the matter.

As he stepped into the hall, there came a growl from the direction of his office, a heavy grunt, and the biggest humanoid he'd seen yet exploded at him out of the shadows.

Towers squeezed the trigger, whipped back against the wall, and fired again as the humanoid veered toward him, gripped him around the waist, and threw him down the hallway. Towers lost his footing, slammed down on his back, the humanoid landed on top of him, and with a heavy smash a lion landed on the humanoid. There was one chaotic instant full of claws, teeth, and noise, then Towers was on his feet, the badly-wounded

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

humanoid was in a corner, and the lion was mauling the humanoid with terrific blows from his paws.

There was a sound of running feet, and a strongly-built private with a guard detail armband, a thick smear of dirt across his face, and a bloody nose, ran up and shouted, "Back! Sit!"

The lion, growling, backed from the shambles of the humanoid, and with his right forepaw raised and the claws out, the paw making tentative motions in the air, sat, crouched forward on his haunches.

The guard shone a powerful light in the corner, murmured fervently to himself, and said in a clear steady voice, "Good boy. Good. All right, now."

The lion abruptly sat back, gave a final growl, and began to clean himself.

"Sir," said the guard, "do you know where that thing was?"

"Where?"

"In your office, sir!"

Towers limped down the hall, took a look in his office, which was a shambles, and waited while the guard detail checked, and reported that no new captives had gotten loose, so this latest humanoid must be prisoner number four, missing since last night.

Towers went back to sleep, and after what seemed only a few minutes, woke up exhausted and aching from head to foot, with someone gently but insistently shaking him by the shoulder.

Logan was saying, "Sir, I'm sorry. The situation's gotten worse."

Towers opened his eyes. The room was light, and from outside came an almost continuous firing.

Towers sat up. "What time is it?"

"Almost ten."

Towers swung out of bed, winced at a sharp pain in his side, splashed cold water on his face, and dressed rapidly. "What's happened?"

"A searchlight on the wall burned out late last night, and in trying to light that section of wall, the soldiers on duty stepped up the current at the two neighboring searchlights, and burnt them out, too. Before they got them back in operation, some humanoids climbed over the wall. They killed about a dozen Centrans in their sleep, and there was a reign of terror in the camp till sun-up. Now," Logan stepped to the window and raised it, "listen out there."

Towers stepped to the window and listened.

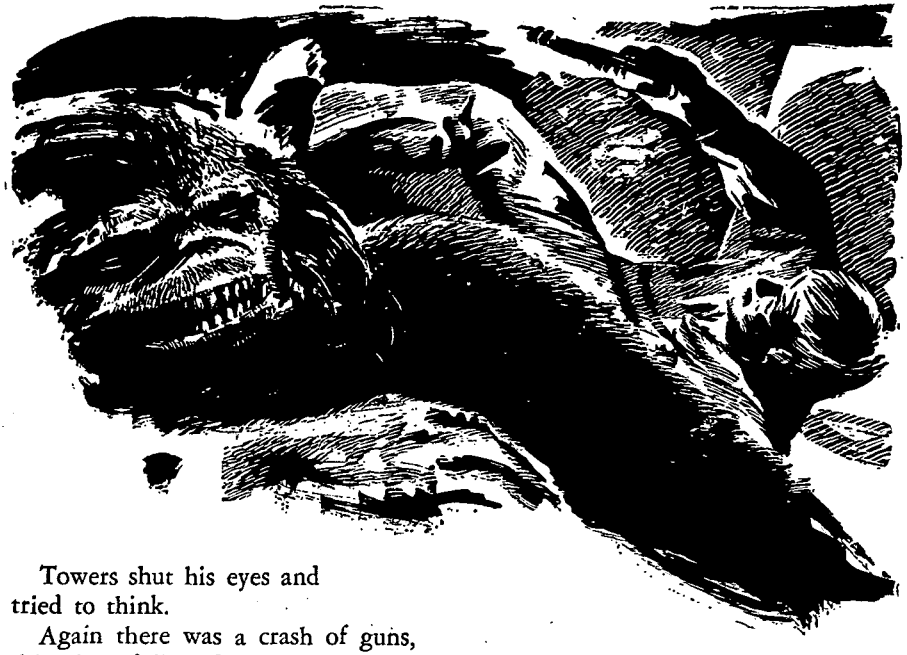
Clear and distinct, a chant came through the window: "*home* . . . We want to go home. *Home* . . . We want to go *home*. . ."

"That's the Centrans?" said Towers.

"About half of them, sir. Klossig's deputy was just on the phone, and says General Klossig is out there with the Headquarters Guard, trying to break up the mob. Anything we can do to support the general, to distract, to—"

The crash of a volley of gunfire came through the window, followed by another crash, and another. Then the chant rose up again, "Home! Home! We want to go—"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



Towers shut his eyes and tried to think.

Again there was a crash of guns, this time followed by screams and yells.

Towers said, "Where are the bugs we were using to test the humanoids?"

"There are whole cases of them in the Special Devices barracks next to the blockhouse."

"Break out the all-purpose bug spray, and be sure everybody—and all the animals—gets a good dose. Then turn loose the Jersey Special mosquitoes, the yellow jackets, the hornets, and all the other flying pests on hand except the giant bumblebees. We'll make this the shortest rebellion in Centran history."

Logan left the room at a run.

Towers strapped on his gun, went down the hall to his office, and looked around. All the stacks of Centran reports were out flat on the floor. Logan's desk was knocked over on its side, and Towers' desk was slewed around five feet from where he had left it. The door of the storage closet was open, with half-a-dozen empty cans and a brass belt buckle lying on the floor. Over the door, smashed flat on the doorframe, was the bug that had been flying around the room the day before. Towers went into the closet, and looked around. Bottles were empty, cans were licked clean, a large section of wallboard was eaten away from the floor halfway to the ceiling, exposing the studs. Towers stepped back and looked up

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

at the bug. He gave a low exclamation, and turned at the sound of the door opening.

One of his men burst in, carrying a formidable gun with a number of outthrust nozzles.

"Bug-spray, sir! Don't move!"

Towers shut his eyes. He was enveloped in a cloud of fine stinging spray that seemed to hit him from all directions at once. From somewhere, he could hear the clanging of an alarm bell, and the booming of loud-speakers warning that there was just ninety seconds left to get sprayed with repellent.

"Done, sir!"

The door opened and slammed shut. There was the pound of feet hurrying down the hall, and the bang of doors being thrown open and shut again as the hunt went on for anybody who needed bug repellent.

"Sixty seconds!" roared an amplified voice.

Logan came in as Towers was choking in a breath of air that stank of repellent. Right behind Logan came Cartwright. Clouds of vapor rose from both men.

"We're about set," said Logan, stepping around the fallen stacks of Centran reports. "The bugs are ready, and we've got plenty of them."

"O.K.," said Towers. "Now—"

"Thirty seconds!" roared the loud-speaker.

"Sir," said Cartwright hopefully, "is there anything I can do?"

Towers said to Logan, "Listen—"

The phone rang, and Logan, still facing Towers, scooped it up. "Yes, sir . . . Yes . . . Yes . . . In about half-a-minute, sir." He hung up, and said to Towers, "General Klossig's deputy, sir."

"O.K.," said Towers. "Now—"

"Fifteen seconds!" roared the voice from the loud-speaker.

The door flew open. A set of nozzles thrust in. A voice shouted "Here are some!"

"No, no!" said Towers. "We've already—"

A blast of spray enveloped him.

"Ten seconds!" boomed the loud-speaker.

Logan swore, and gagged.

"O.K., now!" The door banged shut.

Towers groped his way to a window, and savagely threw it up.

"Five seconds!" boomed the loud-speaker. "Four! Three! Two!"

"Sir—" choked Cartwright.

"Open that door," said Towers, "and get a little air in here."

"Zero!" screamed the loud-speaker.

Cartwright threw the door open.

There was a buzzing, droning noise from outside. Towers looked out to see a tornado of hurrying black dots rise over the human section of camp. The air filled with buzzing, droning, whining sounds, and little darting shapes.

Logan was furiously wiping his face. "Thank God that's over."

"Yes," said Towers, "as long as some fool didn't—"

There was a thunder of feet that shook the building.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Towers shouted, "Look out!"

A huge gorilla burst into the room, and whirled around. A black-and-yellow thing about the size of a one-inch cut off the end of a lead pencil, flew in right behind and dove at him. The gorilla let out a roar of terror and heaved a chair at it. The chair smashed through the ceiling, legs first, and hung there. The black-and-yellow thing reappeared from the side, and darted for the gorilla.

A set of nozzles poked in the doorway.

"Spray him!" yelled Towers and Logan simultaneously.

The gorilla streaked around the room.

Towers, Logan, and Cartwright bolted to get out of the way.

There was a crash that shook the building.

Towers whirled around. There was a big hole in the opposite wall of the room. Logan and Cartwright were hastily picking themselves up. The gorilla was gone. At the door, the nozzles now thrust in decisively.

"*No!*" shouted Towers. "He's *gone!*"

There was a rolling cloud from the nozzles, then a yell. The spray gun flew in the doorway followed by a shouting figure with half-a-dozen yellow jackets swirling around his head. The gun landed against the wall, and the figure went out the open window, hit the ground in a somersault, and streaked across the open space.

Towers shut his eyes.

Logan picked up the spray gun. "The total, one-hundred per cent, witless damned fool. He was so busy spraying everyone else, *he didn't get sprayed himself!*"

Towers said, "Just so long as they didn't miss any more gorillas."

Cartwright cleared his throat apologetically, "Sir, excuse me. If there's anything I can do to clear myself—"

"There is." Towers took him by the arm. "You see that bug, flattened on the doorframe? Odd-looking bug, isn't it? It appears to have a sting on one end, and a sucker on the other end. Now, look in this supply closet. Obviously, from all this stuff that's eaten up, the escaped humanoid spent a long time in here. Now, this bug didn't pay much attention to us yesterday, but flew around the room, hovered outside the door to this closet or sat on the doorframe over the closet, buzzing from time to time. Now, *our* insects don't trouble these humanoids, but *something* kept that humanoid from coming out till after we closed up and snapped off the lights in here."

"Yes, sir," said Cartwright, frowning at the squashed bug. "It must have been that insect."

Towers nodded. "And the sooner we find out what that insect is, the better. The obvious way would be to get the information from some expert in Planetary Integration, but"—he listened for a moment to the distant shouts and screams coming from the Centran part of camp— "I'm afraid they're not going to be available for a while."

"Yes, sir," said Cartwright. "So I should—?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Go through these papers," said Towers, pointing to the stacks of Centran reports on the floor. "As soon as you find out what this bug is, your punishment's over."

Cartwright whipped out a pocket knife, cut the strings binding the end stack of reports, pulled out the top one, and started to read. Abruptly he stopped, and looked intently at the thousands of reports waiting to be read.

Logan said to Towers, "Sir, if we *do* find the right kind of bug, and can mass-breed it, that should take care of protecting the Centran camps. *After* we have enough bugs."

"We might be able to do more than that with them," said Towers, frowning. "We have to be very careful about spreading complete colonies of our own insects over a planet. But *this* bug is native to the planet, and on top of that it doesn't seem to bother us." He slewed his desk around to something like a normal position, and amidst the shouts, buzzing, droning, and whining sounds, sat down and tried to think.

"But, sir," said Logan apologetically, "*first* we've got to get around this ammunition shortage."

The days blended into weeks as they struggled with the ammunition shortage, and a host of miscellaneous problems.

Klossig's part of camp was like a city after a siege. The buildings were shot up, dead and wounded were strewn around indiscriminately, the air was choked with smoke from small fires that threatened to get out of hand and burn up the whole camp. The Centrans not hurt in the shooting were dazed from the shock of the revolt, and half-dead from the attacks of the insects that broke it up. Powerful insecticides had disposed of most of the insects, but a few kept reappearing from unlikely places, to add a pall of nervous dread to the desolation.

To keep the camp from being overrun by the humanoids, Towers had to rush his own men onto the walls as sharpshooters, backed up by roaming squads of close-trained wolves, big cats, and gorillas. The other Centran camps pleaded for help as their munitions supply dwindled, and this strained Towers' manpower to the limit. Just as he reached the point where he had nothing to spare, Cartwright discovered in the Centran reports a reference to an odd bug that terrorized the humanoids in the daytime, and was destroyed by them at night, the nests being thrown down, ripped open, and the young bugs torn out, to be eaten as a special delicacy.

By degrees, Towers managed to straighten out the worst of the mess, getting automatic devices into operation to ease the strain on his men. The scouts then went into action, and brought back several nests of the insects. But now, one of the random eddying migrations of the humanoids produced a surge of population below Klossig's camp, and the number of desperate climbers coming up the cliff rose to an unprecedented flood.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

At this point, Klossig fortunately was able to get back onto his feet. A sudden burst of energy swept through the Centran part of camp. The troops, jolted into action by the sight of dead mutineers dangling from gallows, took over from the Special Effects men on the walls, and savagely knocked the humanoids off with clubs, axes, and sledge hammers.

This desperate effort gave Towers and his men just time enough to study the main routes up which the humanoids climbed, and to put some Special Effects into operation. The mountain suddenly blossomed out in live wires, strips of rock polished mirror-smooth and greased, and sets of handholds that supported a climber's full weight for a brief moment, then snapped out on forty feet of cable, stopped with a jolt, and wound up ready for the next climber.

Towers, mopping perspiration from his brow, returned to his office to find a report stating that the local bugs were now being propagated successfully by mass-breeding. The report stated: "Initial efforts at fractionation suggest that in no very great time we will have on hand a spectrum of strains ranging, in their effects on the local humanoids, from very moderate to near-lethal virulence."

"In other words," said Towers, in relief, "we'll have strains of bugs capable of hitting the humanoids with everything from annoyance to terror."

"Well," said Logan, "that's a relief. We've about stopped the humanoids coming up the wall, but the Centran troops are dead on their feet, and I hate to think what will happen if more humanoids *should* climb up. With the bugs, we can stop them."

Towers was drawing a careful sketch on a pad. "The original problem wasn't just to stop them," he said. "That will leave us, Klossig, and the humanoids, right in the same hole we were in to start with. The problem is to somehow break the humanoids out of their planetary mob. See if you can find one of our men who's ingenious at construction."

Logan went out, and came back with a thin, wiry individual with capable hands. Towers pointed to several sketches. "We're going to plant nests of bugs down there in the jungle. The bugs will frustrate and terrorize a large proportion of the humanoids by day—which, we hope, will tend to break up their instinctive-traditional pattern of living in an endless cycle of eat, reproduce, and kill. But at night, the humanoids will go up after the nests, and only a few that happen to be located in particularly inaccessible spots will survive. Unless we take precautions."

The technician looked over the drawings. "You want a kind of cage, or barrier, with knives and other stuff sticking out, so the humanoids can't get at the nests?"

"No," said Towers, "so the humanoids can't get at the nests *as the humanoids are now.* These cages have to be of various kinds, requiring different degrees of ingenuity to open, the mechanism has to be out where it

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

can be seen, and some of the doors are to have widely-separated releases, so they can be opened *by co-operative effort.*"

The technician frowned, then straightened up as a light seemed to dawn on him. "I get it. I'll start right to work on it, sir."

"Good."

The technician hurried out with the sketches.

Towers, feeling exhausted, pushed back his chair and got up. He thought he would go outside, take a little walk, and get some fresh air. He opened the outer door and froze.

Coming straight for him, a wild-eyed hairy figure burst across the clear space between the barracks. Right behind sprinted a crowd of Centrans with clubs, axes, and sledge hammers. But the humanoid was gaining.

Towers barely had time to reach for his gun.

There was a terrific burst of lights, then spiraling blackness.

Towers was on his back, vaguely aware of a soft covering over him. He opened his eyes.

Daylight hit him with a hammering shock.

He waited a moment, and tried opening his eyes gradually. By degrees, he succeeded, until in a half-squint he could look around.

He was lying in his own room, with a medical orderly watching him tensely.

Towers tried to sit up. The room wavered around him.

"Careful, sir," warned the orderly.

Towers waited till the room steadied, then sat up further. The orderly propped him up with a pillow.

Towers said, "Where's Major Logan?" His voice came out in a whisper, and he had to clear his throat and try again.

"I'll get him, sir." The orderly went out.

A few minutes later, Logan came in.

Towers said, "What day is it?"

"Sir, you've been out for nearly ten days. The doctor thought you were done for."

Towers grunted, and swung carefully to sit on the edge of the bed. He felt light-headed, but otherwise all right. It came to him with a shock that he actually felt better than he had earlier. He no longer ached all over. He glanced at Logan.

"What happened while I was out?"

"We got into production on the barriers and cages to protect the nests. We've got a pilot project going down there."

Towers got carefully to his feet. "How's it working?"

"Inside the test area, the insects knock the humanoids' normal daytime procedure to bits and pieces, and the more virulent ones create a terrific casualty rate. At night, a few individuals and little groups of humanoids hunt out the insects. At first, the cages cut the humanoids to ribbons, and we thought it was going to be the same procedure as outside on the cliff. The ones in front rush on because they're pressed from behind,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

and the ones behind neither know nor care what happens to the ones in front. But apparently the humanoids that hunt the nests at night have a little more initiative than the rest."

"What happened?"

"Early the other night, we were watching a scene on infra red, and one of those scarred-up humanoids got into a terrific fight with two others, finally beat them into a stupor, dragged them around to opposite sides of a fence of knives protecting the base of a pole with a nest on it, and by sheer persistence finally got the others to press down the two separated release-levers simultaneously. The fence collapsed, and the three of them got the big nest for their reward. The next day, these three stayed together, and a couple of nights later, they got at a trickier nest. Now there are half-a-dozen humanoids in this group, they generally stick together in the daytime, and they don't get broken up by the others. Swarms of the less-virulent bugs create so much distraction that not many of the humanoids can spare the patience to stalk the others. What's getting formed down there is a tribe, with a leader."

Towers breathed a sigh of relief. "When that process picks up enough speed, we should have something it's possible to deal with."

Logan said, "Klossig thinks so, too. When we started the second test area—a ring of virulent bugs on the outside to stop migration, with the less virulent ones scattered around the interior—he insisted on having special briefings for his troops. It's boosted morale terrifically, and the Centrans are in high spirits." Logan glanced out the window and added, "Most of them, that is." Then he said, "I think these humanoids are the toughest opposition we've ever run into."

Towers glanced out the window to see what Logan had seen that made him add the qualification "Most of them, that is."

Outside was a Centran colonel, in charge of a small crew of Centrans led by a private wearing a uniform with threads sticking out in the form of sergeant's chevrons. Towers leaned forward, and recognized the colonel and the sergeant who had caused Logan and him so much trouble when they first landed on the planet.

The colonel gloomily led his little band slowly past the barracks, where they picked up cigarette butts, chewing-gum wrappers, odd bits of string and broken rubber bands, and other miscellaneous junk.

Towers laughed. "Klossig's caught up with the colonel."

"Yes," said Logan, glancing out the window, "the colonel's in charge of the worst foul-ups in camp. Last week Klossig had the colonel and his boys putting new crack-filler between all the boards in the main hall of the Headquarter's Building. It's only about two hundred feet long."

Towers grinned, then said suddenly, "As a matter of fact, these humanoids *aren't* our toughest opponents. They're just one minor variety

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

of our toughest opponents. Think of the colonel. Think of Cartwright, before he started to use his head. Think of either of us sitting in that office, seeing the antics of that bug without realizing something was wrong."

"What do you mean?"

"Our toughest opponents," said Towers, "are all those who have the capacity for thought, but—for some reason—*won't think.*"

Towers and Logan looked out the window, glanced from the colonel to the humanoids to Cartwright, just crossing the yard below. Then they cast a furtive glance at each other.

An object across the room caught Towers' attention. He cleared his throat.

"Look there, Logan. That's the worst offender of all."

"Who?"

"Right there. Look." He pointed.

Logan glanced around, then growled under his breath.

Towers laughed.

Then he paused, and thought the matter over carefully.

He was right there in the mirror, too. ■

IN TIMES TO COME

In next month's issue we begin a two-part novel by James Blish, "A Life for the Stars." Jim Blish's "Oakie" series—the cities traveling between the stars, lifted, driven and protected by "spindizzy fields"—started here in the April 1950 issue with "Oakie." In "A Life for the Stars" Blish goes all the way back to the beginning of the starward movement, when Earth's cities were first lifting into independent existence in space. Of course Scranton was not the first to lift—New York with its "City Fathers," Mayor Amalfi and Company, had already gone. And not every city that started forth knew quite what they were getting into—only what they were getting out of!

The Editor

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The Bramble Bush

Usually, if a man's gotten into bad trouble by getting into something, he's a fool to go back. But there are times . . .

by Randall Garrett

Illustrated by Schelling

There was a man in our town,
And he was wond'rous wise;
He jumped into a bramble bush,
And scratch'd out both his eyes!
—Old Nursery Rhyme

Peter de Hooch was dreaming that the moon had blown up when he awakened. The room was dark except for the glowing night-light near the door, and he sat up trying to separate the dream from reality. He focused his eyes on the glow-plate. What had wakened him? Something had, he was sure, but there didn't seem to be anything out of the ordinary now.

The explosion in his dream had seemed extraordinarily realistic. He could still remember vividly the vibration and the *cr-r-r-ump!* of the noise. But there was no sign of what might have caused the dream sequence.

Maybe something fell, he thought. He swung his legs off his bed and padded barefoot over to the light switch. He was so used to walking under the light lunar gravity that he was no longer conscious of it. He pressed the switch, and the room was suddenly flooded with light. He looked around.

Everything was in place, apparently. There was nothing on the floor that shouldn't be there. The books were all in their places in the bookshelf. The stuff on his desk seemed undisturbed.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The only thing that wasn't as it should be was the picture on the wall. It was a reproduction of a painting by Pieter de Hooch, which he had always liked, aside from the fact that he had been named after the seventeenth-century Dutch artist. The picture was slightly askew on the wall.

He was sleepily trying to figure out the significance of that when the phone sounded. He walked over and picked it up. "Yeah?"

"Guz? Guz? Get over here quick!" Sam Willows' voice came excitedly from the instrument.

"Whatsamatter, Puss?" he asked blearily.

"Number Two just blew! We need help, Guz! Fast!"

"I'm on my way!" de Hooch said.

"Take C corridor," Willows warned. "A and B caved in, and the bulkheads have dropped. Make it snappy!"

"I'm gone already," de Hooch said, dropping the phone back into place.

He grabbed his vacuum suit from its hanger and got into it as though his own room had already sprung an air leak.

Number Two has blown! he thought. That would be the one that Ferguson and Metty were working on. What had they been cooking? He couldn't remember right off the bat. Something touchy, he thought; something pretty hot.

But that wouldn't cause an atomic reactor to blow. It obviously hadn't been a nuclear blow-up of any proportions, or he wouldn't be here now, zipping up the front of his vac suit. Still, it had been powerful enough to shake the lunar crust a little or he wouldn't have been wakened by the blast.

These new reactors could get out a lot more power, and they could do a lot more than the old ones could, but they weren't as safe as the old heavy-metal reactors, by a long shot. None had blown up yet—quite—but there was still the chance. That's why they were built on Luna instead of on Earth. Considering what they could do, de Hooch often felt that it would be safer if they were built out on some nice, safe asteroid—preferably one in the Jovian Trojan sector.

He clamped his fishbowl on tight, opened the door, and sprinted toward Corridor C.

The trouble with the Ditmars-Horst reactor was that it lacked any automatic negative-feedback system. If a D-H decided to go wild, it went wild. Fortunately, that rarely happened. The safe limits for reactions were quite wide—wider, usually, than the reaction limits themselves, so that there was always a margin of safety. And within the limits, a nicety of control existed that made nucleonics almost an esoteric branch of chemistry. Cookbook chemistry, practically.

Want duterium? Recipe: To 1.00813 gms. purest Hydrogen-1 add, slowly and with care, 1.00896 gms. fine-grade neutrons. Cook until well done in a Ditmars-Horst reactor. Yield: 2.01471 gms. rare old duterium plus some two million million million ergs of raw energy. Now you are cooking with gas!

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

All you had to do was keep the reaction going at a slow enough rate so that the energy could be bled off, and there was nothing to worry about. Usually. But control of the feebleizer fields still wasn't perfect, because the fields that enfeebled the reactions and made them easy to control weren't yet too well understood.

Peter de Hooch turned into Corridor C and kept on running. There was plenty of air still in this corridor, and there was apparently little likelihood of his needing his vac suit. But on the moon nobody responds to an emergency call without a vac suit.

He was troubled about Corridors A and B. The explosion must have been pretty violent to have sealed off two of the four corridors leading from the living quarters to the reaction labs. Two corridors went directly to one of the reactors, two went directly to the second. Two more connected the reactor labs themselves, putting the labs and the living quarters at the corners of an equilateral triangle. (Peter had never been able to figure out why A and B corridors led to Reactor Two, while C and D led to Reactor One. Logically, he thought, it should have been the other way around. Oh, well.)

Going down C meant that he'd have to get to Reactor Two the long way around.

What had the damage been? he asked himself. Had anyone been hurt? Or killed? He pushed the questions out of his mind. There was no point in speculating. He'd have the information soon enough.

He took the cutoff to the left, at a sixty-degree angle to Corridor C, which led him directly to Corridor E, by-passing Reactor One. He noticed as he went by that the operations lamp was out. Nobody was working with Reactor One.

As he pounded on down the empty corridor, he suddenly realized that he hadn't seen anyone else running with him. There were five other men in the reactor station, and—so far—he had seen no one. He knew where Willows was, but where were Ferguson, Metty, Laynard, and Quillan? He pushed those questions out of his mind, too, for the time being.

A head popped out of the door at the far end of the corridor.

"Guz! *Hurry,* Guz!"

De Hooch didn't bother to answer Willows. He was short of breath as it was. He knew, besides, that no answer was expected. He had known Willows for years, and knew how he thought. It was Willows who had first tagged de Hooch with that silly nickname, "Guzzle". Not because Peter was such a heavy drinker—although he could hold it like a gentleman—but because he had thought "Guzzle" de Hooch was so uproariously funny. "Nobody likes a guzzle as well as de Hooch," he'd say, with an idiot grin. As a result, everybody called Peter "Guz" now.

The head had vanished back into the control room of Reactor Two. De Hooch kept on running, his breath rasping loudly in the confines of the fishbowl helmet. Running four hun-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

dred yards isn't the easiest thing in the world, even if a man is in good physical condition. There was less weight to contend with, but the mass that had to be pushed along remained the same. The notion that running on Luna was an effortless breeze was one that only Earthhuggers clung to.

He ran into the control room and stopped, panting heavily. "What . . . happened?"

Sam Willows' normally handsome face looked drawn. "Something went wrong. I don't know what. I was finishing up with Reactor One when I heard the explosion. They are both"—he gestured toward the reactor—"both in there."

"Still alive?"

"I think so. One of 'em, anyway. Take a look."

De Hooch went over to the periscope and put his eyes to the binoculars. He could see two figures in heavy, dull-gray radiation-proof suits. They were lying flat on the floor, and neither was moving. De Hooch said as much.

"The one on the left was moving his arm—just a little," Willows said. "I'll swear he was."

Something in the man's voice made de Hooch turn his head away from the periscope's eyepieces. Willows' face was gray, and a thin film of greasy perspiration reflected the light from the overhead plates. The man was on the verge of panic.

"Calm down, Puss," de Hooch said gently "Where's Quillan and Laynard?"

"They're in their rooms," Willows said in a tight voice. "Trapped. The bulkheads have closed 'em off in A. No air in the corridor. We'll have to dig 'em out. I called 'em both on the phone. They're all right, but they're trapped."

"Did you call Base?"

"Yes. They haven't got a ship. They sent three moon-cats, though. They ought to be here by morning."

De Hooch looked up at the chronometer on the wall. Oh one twelve, Greenwich time. "Morning" meant any time between eight and noon; the position of the sun up on the surface had nothing to do with Lunar time. As a matter of fact, there was a full Earth shining at the moment, which meant that it wouldn't be dawn on the surface for a week yet.

"If the cats from Base get here by noon, we'll be O.K., won't we?" de Hooch asked.

"Look at the instruments," Willows said.

De Hooch ran a practiced eye over the console and swallowed. "What were they running?"

"Mercury 203," Willows said. "Half-life forty-six point five days. Beta and gamma emitter. Converts to Thallium 203, stable."

"What did they want with a kilogram of the stuff?"

"Special order. Shipment to Earth for some reason."

"Have you checked the end-point? She's building up fast."

"No. No. I haven't." He wet his lips with the tip of his tongue.

"Check it," said de Hooch. "Do any of the controls work?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"I don't know. I didn't want to fiddle with them."

"You start giving them a rundown. I'm going to get into a suit and go pull those two out of there—if they're still alive." He opened the locker and took his radiation-proof suit out. He checked it over carefully and began shucking his vac suit.

A few minutes delay in getting to the men in the reactor's anteroom didn't matter much. If they hadn't been killed outright, and were still alive, they would probably live a good deal longer. The shells of the radiation suits didn't look damaged, and the instruments indicated very little radiation in the room. Whatever it was that had exploded had done most of its damage at the other end of the reactor. Evidently, a fissure had been opened to the surface, forty feet above—a fissure big enough to let all the air out of A and B corridors, and activate the automatic bulkheads to seal off the airless section.

What troubled him was Willows. If he hadn't known the man so well, de Hooch would have verbally blasted him where he stood.

His reaction to trouble had been typical. De Hooch had already seen Willows in trouble three times, and each time, the reaction had been the same: near panic. Every time, his first thought had been to scream for help rather than to do anything himself. Almost anyone else would have made one call and then climbed into a radiation suit to get Ferguson and Metty out of the anteroom. There was certainly no apparent immediate danger. But all that Willows had done was yell for someone to come and do his thinking and acting for him. He had called Base; he had called de Hooch; he had called Quillan and Laynard. But he hadn't done anything else.

Now he had to be handled with kid gloves. If de Hooch didn't act calm, if he didn't go about things just right, Willows might very likely go over the line into total panic. As long as he had someone to depend on, he'd be all right, and de Hooch didn't want to lose the only help he had right now.

"Fermium 256," said Willows in a tight, flat voice.

"What?" de Hooch asked calmly.

"Fermium 256," Willows repeated. "That's what the stuff is going to start building towards. Spontaneous fission. Half-life of three hours." He took a deep breath. "The reactor won't be able to contain it. We haven't got that kind of bleed-off control."

"No," de Hooch agreed. "I suggest we stop it."

"The freezer control isn't functioning," Willows said. "I guess that's what they went in there to correct."

"I doubt it," de Hooch said carefully. "They wouldn't have needed suits for that. They must have had something else bothering them. I'd be willing to bet they went in to pull a sample and something went wrong."

"Why? What makes you think so?"

"If there'd been trouble, they'd have called for someone to stay here

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

at the console. Both of them wouldn't have gone in if there was any trouble."

"Yeah. Yeah, I guess you're right." He looked visibly relieved. "What do you suppose went wrong?"

"Look at your meters. Four of 'em aren't registering."

Willows looked. "I hadn't noticed. I thought they were just registering low. You're right, though. Yeah. You're right. The surface bleed-off. Hydrogen loss. Blew a valve, is all. Yeah." He grinned a little. "Must've been quite a volcano for a second or two."

De Hooch grinned back at him. "Yeah. Must've. Give me a hand with these clamps."

Willows began fastening the clamps on the heavy suit. "D'you think Ferguson and Metty are O.K., Guz?" he asked.

De Hooch noticed it was the first time he had used the names of the two men. Now that there was a chance that they were alive, at least in his own mind, he was willing to admit that they were men he knew. Willows didn't want to think that anyone he knew had done such a terrible thing as die. It hit too close to home.

The man wasn't thinking. He was willing to grasp at anything that offered him a chance—dream straws. The idea was to keep him busy, keep his mind on trivia, keep him from thinking about what was going on inside that reactor.

He should have known automatically that it was building toward Fermium 256. It was the most logical, easiest, and simplest way for a D-H reactor to go off the deep end.

A Ditmars-Horst reactor took advantage of the fact that any number can be expressed as the sum of powers of two—and the number of nucleons in an atomic nucleus was no exception to that mathematical rule.

Building atoms by adding nucleons wasn't as simple as putting marbles in a bag because of the energy differential, but the energy derived from the fusion of the elements lighter than Iron 56 could be compensated for by using it to pack the nuclei heavier than that. The trick was to find a chain of reactions that gave the least necessary energy transfer. The method by which the reactions were carried out might have driven a mid-Twentieth Century physicist a trifle ga-ga, but most of the reactions themselves would have been recognizable.

There were several possible reactions which Ferguson and Metty could have used to produce Hg-203, but de Hooch was fairly sure he knew which one it was. The five-branch, double-alpha-addition scheme was the one that was easiest to use—and it was the only one that started the damnable doubling chain reaction, where the nuclear weights went up exponentially under the influence of the peculiar conditions within the reactor. 2-4-8-16-32-64-128-256 . . . Hydrogen 2 and Helium 4 were stable. So were Oxygen 16 and Sulfur 32. The reaction encountered a sticky spot at Beryllium 8, which is highly unstable, with a half life of ten to the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

minus sixteenth seconds, spontaneously fissioning back into two Helium 4 nuclei. Past Sulfur 32, there was a lot of positron emission as the nuclei fought to increase the number of neutrons to maintain a stable balance. Germanium 64 is not at all stable, and neither is Neodymium 128, but the instability can be corrected by positive beta emission. When two nuclei of the resulting Xenon 128 are forced together, the positron emission begins long before the coalescence is complete, resulting in Fermium 256.

But not even a Ditmars-Horst reactor can stand the next step, because matter itself won't stand it—not even in a D-H reactor. The trouble is that a D-H reactor *tries*. Mathematically, it was assumed that the resulting nucleus did exist—for an infinitesimal instant of time. Literally, mathematically, infinitesimal—so close to zero that it would be utterly impossible to measure it. Someone had dubbed the hypothetical stuff Instantanium 512.

Whether Instantium 512 had any real existence is an argument for philosophers only. The results, in any case, were catastrophic. The whole conglomeration came apart in a grand splatter of neutrons, protons, negatrons, positrons, electrons, neutrinos —a whole slew of Greek-lettered mesons of various charges and masses, and a fine collection of strange and ultrastrange particles. Energy? Just oddles and gobs.

Peter de Hooch had heard about the results. He had no desire to experience them first hand. Fortunately, the reaction that led up to them took time. It could be stopped at any time up to the Fm-256 stage. According to the instruments, that wouldn't be for another six hours yet, so there was nothing at all to worry about. Even after that it could be stopped, provided one had a way to get rid of the violently fissioning fermium.

"Connections O.K? Willows asked. His voice came over the earphones inside the ponderous helmet of the radiation suit.

"Fine," said de Hooch. He adjusted the double periscope so that his vision was clear. "Perfect."

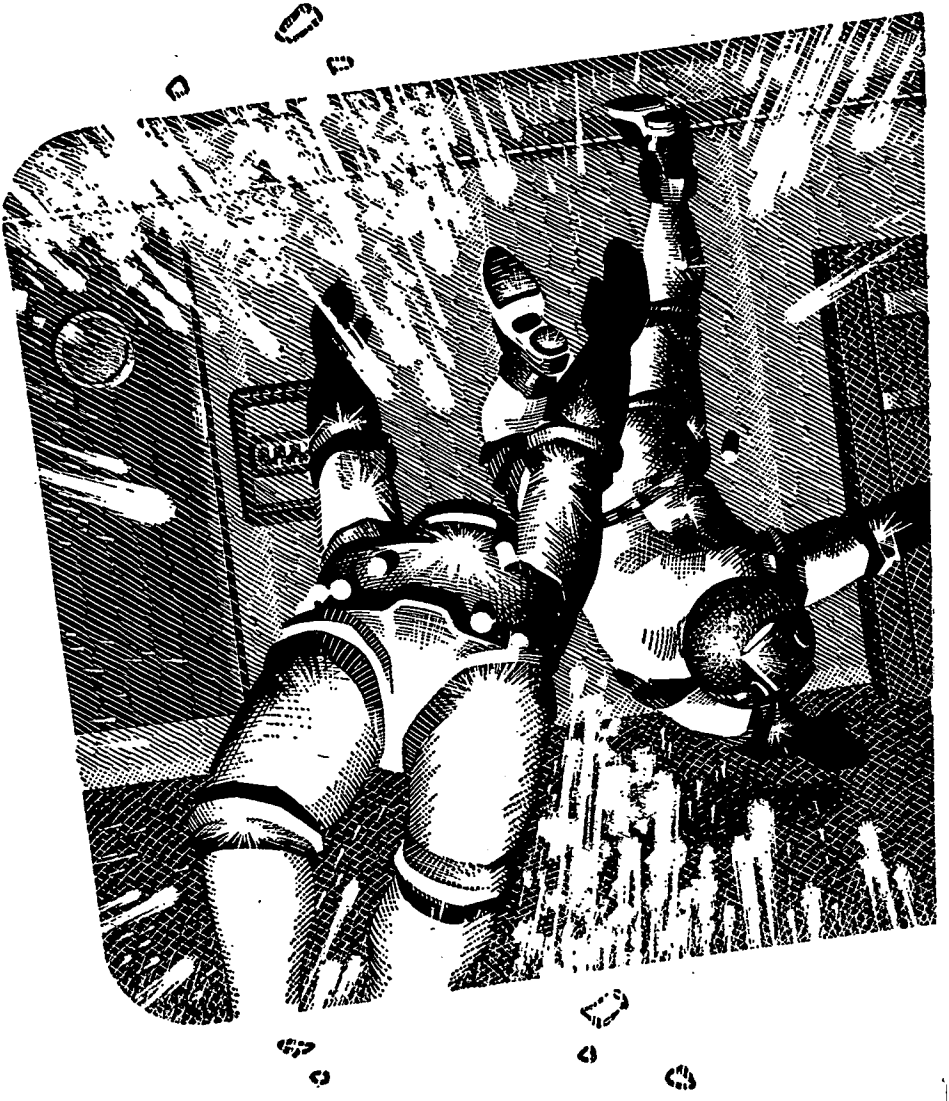
He tested the controls, moving his arms and legs to see if the suit responded. The suit was so heavy that, without powered joints, controlled by servomechanisms, he would have been unable to move, even under Lunar gravity. With the power on, though, it was no harder than walking underwater in a diving suit. "All's well, Puss," he said.

"I'll keep an eye on you," said Willows.

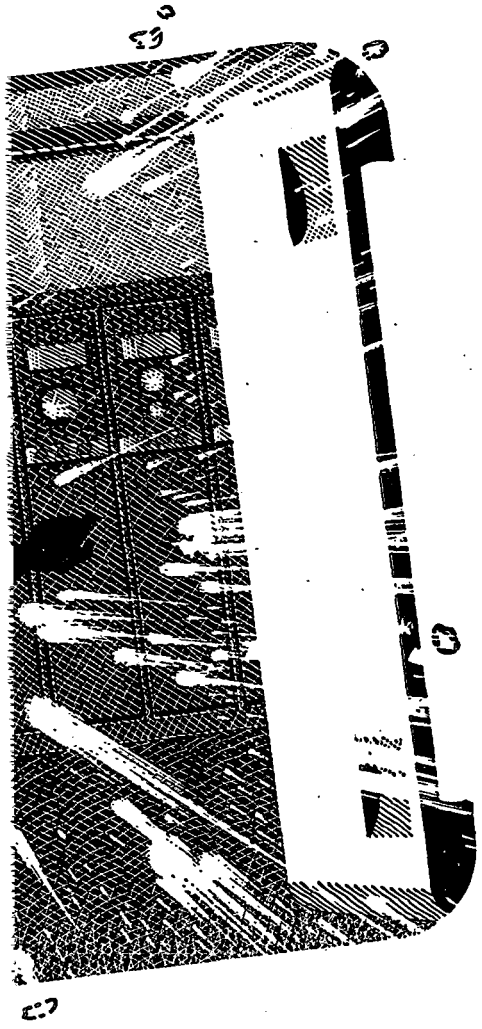
"Fine. Well, here goes Colossus de Hooch." He began walking toward the door that led into the corridor which connected the reactor anteroom to the control room.

It took time to drag the two inert figures out of the anteroom. All de Hooch could do was grab them under the armpits, apply power, and drag them out. He went out the same way he had come in, traversing the separate chambers in reverse order. First

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



came the decontamination chamber, where the radioactive dust that might have settled on the suits was sluiced off by the detergent sprays. When the radiation detectors registered low enough, de Hooch dragged Ferguson into the outer chamber, then went back and got Metty and put him through the same process. Then he dragged them on into the control room so that Willows could get them out of the heavy suits.

"Can you help me, Guz?" Willows asked. It was obvious that he didn't want to open the suits. He didn't want to see what might be inside. De Hooch helped him.

They were both alive, but unconscious. Bones had been broken, and Metty appeared to be suffering from concussion. They were badly damaged, but they'd live.

De Hooch and Willows made two trips down E and C corridors, carrying the men on a stretcher, to get them in bed. De Hooch splinted the broken bones as best he could and gave each of them a shot of narcodyne. He had to do the medical work because Quillan, the medic, was trapped in Corridor A. He called Quillan on the phone to tell him what had happened. He described the signs and symptoms of the victims as best he could, and then did what Quillan told him to do.

"They ought to be all right," Quillan said. "With that dope in them, they'll be out cold for the next twelve hours, and by that time, the boys from Base will be here. Just leave 'em alone and don't move 'em any more."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Right. I'll call you back later. Right now, Puss and I are going to see what's wrong with the control linkages on Number Two."

"Right. By-o."

De Hooch and Willows walked back to the control room of Number Two Reactor in silence.

Once inside the control room, de Hooch said: "How are those control circuits?" Willows was supposed to have been checking them while he had been dragging Ferguson and Metty out of the antechamber.

"Well, I . . . I'm not sure. I'll show you what I've found so far, Guz. You ought to take a look at them. I . . . I'd like you to take a look-see. I think"—he gestured toward the console—"I think they're all right except for the freezer vernier and the pressure release control."

He doesn't trust his own work, de Hooch thought. *Well, that's all right. Neither do I.*

Painstakingly, the two of them went over the checking circuits. Willows was right. The freezer and pressure controls were inoperable.

"Damn," said de Hooch. "Double damn."

"They're probably both stuck at the firewall," Willows said.

"Sure. Where else? I'll have to go in there and unstick 'em. Help me get back into that two-legged tank again." He wished he knew more about what Ferguson and Metty had been doing. He wished he knew why the two men had gone into the anteroom in the first place. He wished a lot of things, but wishing was a useless pastime at this stage of the game.

If only one of the two men had been in a condition to talk!

He got back into his radiation-proof suit again, took one last look at the instruments on the console, and headed for the reactor.

Through the first radiation trap—left turn, right turn, right turn, left turn—through the "cold" room, through the second radiation trap, through the decontamination chamber, and through the third radiation trap into the anteroom. Now that Ferguson and Metty were safely out of the way, he could give his attention to the damage that had been done.

Had Ferguson and Metty actually come in to tap off a sample, as he had suggested to Willows? He looked around at the wreckage in the antechamber. Quite obviously, the heavy door of the sample chamber was wide open, and it certainly appeared that the wreckage was scattered from that point. Cautiously, he went over to look at the open sample chamber. It looked all right, except that the bottom was covered with a bright, metallic dust. He rubbed his finger over it and looked at the fingertip. A very fine dust. And yet it hadn't been scattered very much by the explosion. Heavy. Very likely osmium. Osmium 187 was stable, but it wasn't a normally used step toward Mercury 203. Four successive alpha captures would give Polonium 203, not mercury. Ditto for an oxygen fusion. It could by iridium or platinum, of course. Whatever it was, the instruments in

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

his helmet told him it wasn't hot.

He had a hunch that Ferguson and Metty had been building Mercury 203 from Hafnium 179 by the process of successive fusions with Hydrogen 3 and that something had gone wrong with the H-3 production. It appeared that the explosion had been a simple chemical blast caused by the air oxidation of H-2. But the bleeder vent at the other end of the reactor had apparently kicked at the same time. An enormous amount of unused energy had been released, blowing the entire emergency bleeder system out.

Something didn't seem right. Something stuck in his craw, and he couldn't figure out what it was.

He opened up the conduit boxes that led through the antechamber from the control console to the reactor beyond the firewall. Everything looked fine. That meant that whatever it was that had fouled up the controls was on the other side of the firewall.

"How does it look?" Willows' voice came worriedly over the earphones.

"Have I already said 'damn'?" de Hooch asked.

"You have," Willows said with forced lightness. "You even said 'double damn'."

"*Factorial* damn, then!" said de Hooch.

"What's the matter?"

"Apparently the foul-up is on the *other* side of the firewall."

"Are you going in?"

"I'll have to."

"All right. Watch yourself."

"I will." He went over to the periscope that surveyed the part of the reactor beyond the firewall. Everything looked normal enough. He carefully checked the pressure gauge. Normal.

"Check the spectro for me, will you?" he asked. "Make sure that's just the normal helium atmosphere in there."

"Sure." A pause. "Nothing but helium, Guz. What were you expecting?"

"I don't think I'd care to walk into a hydrogen atmosphere at three hundred Centigrade."

"Neither would I, but how could there be hydrogen in there?"

"There shouldn't be. But there's something screwy going on here, and I can't put my finger on it."

"Well, whatever it is, it isn't hydrogen in the reactor room."

"O.K. Stand by. I'm going in."

He walked over to the firewall door. On the other side of it was a small chamber where the oxygen and nitrogen of normal air would be swept out before he opened the inner door to go into the inner chamber itself. There was no need for an air lock, since small amounts of impurities in the He-4 didn't bother anything.

It was just as he turned the lever that undogged the firewall door that he realized his mistake.

But it was too late.

The door jerked outward, and a hot wind picked him up and slammed him against the far wall.

There was a moment of pain.

Then—nothing.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

There was something familiar about the man who was turning the wheel, but de Hooch couldn't place it. The man was wearing a black hood, as befitted a torturer and executioner.

"Idiot," said the hooded man, giving the wheel of the rack a little more pressure, "explain the following: If a half plus a half is equal to a whole, why is halfnium plus halfnium not equal to wholmium?"

Stretched as he was on the rack, de Hooch could not think straight because of the excruciating pain.

"Because a half is eight point two eight per cent heavier than a hole," said de Hooch.

"You are an idiot, none the less," said the torturer. He gave the wheel another twist. De Hooch wanted to scream, but he couldn't.

"Try again," said the torturer. "What is a half plus four plus four plus four plus four plus—"

"Stop!" *screamed de Hooch.* "Stop! *Stop at the osmium!"*

"Ah! But it didn't *stop at the osmium," said the hooded man. "It went on and on and on. Plus four plus four plus four plus four plus four —until there were so many plus fours in there that the place looked like an old-fashioned golf course."*

"My legs hurt," said de Hooch. The man was no longer wearing a hood, but de Hooch couldn't tell if it was Willows or himself.

"We will all go together when we go," said the man.

De Hooch turned his head away and looked at the ceiling.

And he realized that it was the ceiling of the antechamber.

"My legs hurt," he repeated. And he could hear the hoarse whisper inside the helmet. He realized that he was lying flat on his back. He had been jarred around quite a bit in the suit.

He wondered if he could sit up. He managed to get both arms behind him and push himself into a sitting position. He wiggled his feet. The servos responded. He hurt all over, but a little experiment told him that he was only bruised. Nothing was broken. He hadn't been hit as hard as Ferguson and Metty had been.

"Willows?" he said. "Willows?"

There was no answer from the earphones.

He looked at the chronometer dial inside his helmet. Oh two forty-nine. He had been unconscious less than ten minutes.

The same glance brought his eyes to two other dials. The internal radiation of the suit was a little high, but nothing to worry about. But the dial registering the external radiation was plenty high. Without the protection of the suit, he wouldn't have lived through those ten minutes.

Where was Willows?

And then he knew ,and he pushed any thought of further help from that quarter out of his mind. What had to be done would have to be done by Peter de Hooch alone. He climbed to his feet.

His head hurt, and he swayed with nausea and pain. Only the massive weight of the suit's shoes kept him

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

upright. Then it passed, and he blinked his eyes and shook his head to clear it. He found he was holding his breath, and he let it out.

The trouble had been so simple, and yet he hadn't seen it. Oh, yes, he had! He *must* have, subconsciously. Otherwise, how would he have guessed that the stuff in the sampling chamber was Osmium 187? Ferguson and Metty *had* been trying to make Mercury 203 by adding eight successive tritium nuclei to Hafnium 179, progressing through Tantalum 182, Tungsten 185, Rhenium 188, Osmium 191, Iridium 194, Platinum 197, and Gold 200, all of which were unstable.

But the Hydrogen 3 reaction had gone wrong. The doubling had set in, producing Helium 4. Successive additions of the alpha particles to Hafnium 179 had produced, first, Tungsten 183, and then Osmium 187, both of which were stable.

Ferguson and Metty, seeing that something was wrong, drew off a sample and then reset the reaction to produce the Hg-203 they wanted. Then they had come down to pick up the sample.

They hadn't realized that the helium production had gone wild. Much more helium than necessary was being produced, and the bleeder valve had failed. When they opened the sample chamber, they got a blast of high-pressure helium right in the face. The shock of that sudden release had jarred the whole atmosphere inside the reaction chamber, and the bleeder valve had let go. But the violence of the pressure release had caused a fault to the surface to open up and had closed the valve again—jammed it, probably. There had been enough pressure left in there to blow de Hooch up against the nearest wall when he opened the door. Since the pressure indicator system was connected to the release system, when one had failed, the other had failed. That's why the pressure gauge had indicated normal.

And, of course, it had been the pressure differential that had caused the controls to stick. Well, they ought to be all right now, then. He decided he'd better take a look.

The firewall door was still open. He walked over to it and stepped into the small chamber that led to the inner reactor room. The inside door, much weaker than the outer firewall door, had been blown off its hinges. He stepped past it and went on in.

What he saw made him jerk his glance away from the periscope in his helmet and check his radiation detectors again. Not much change. Relief swept over him as he looked back at the reactor itself. The normally dead black walls were glowing a dull red. It was pure thermal heat, but it shouldn't be doing that.

Moving quickly, he went over to the place where the control cables came in through the firewall. It took him several minutes to assure himself that they would function from the control room now. There was nothing more to do but get out of here and get that reaction damped.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

He went out again, closing the firewall door behind him and dogging it tight. There would be no more helium production now.

He went through the radiation trap to the decontamination chamber to wash off whatever it was he had picked up.

The decontamination room was a mess.

De Hooch stared at the twisted pipes and the stream of water that gushed out of a cracked valve. The blast had jarred everything loose. Well, he could still scrub himself off.

Except that the scrubbers weren't working.

He swore under his breath and twisted the valve that was supposed to dispensé detergent. It did, thank Heaven. He doused himself good with it and then got under the flowing water.

The radiation level remained exactly where it was.

He walked over and pulled one of the brushes off the defunct scrubber and sudsed it up. It wasn't until he started to use it that he got a good look at his arms. He hadn't paid any attention before.

He walked over to the mirror to get a good look.

"You look magnificent," he told his reflection acidly.

The radiation-proof armor looked as though it had been chrome plated. But de Hooch knew better than that. He knew exactly what had happened. He was nicely plated all over with a film of mercury, which had amalgamated itself with the metallic surface of the suit. He was thoroughly wet with the stuff and no amount of water and detergent would take it off.

There was something wrong with Number Two Reactor, all right. It had leaked out some of the Mercury 203 that Ferguson and Metty had been making.

He thought a minute. It hadn't been leaking out just before he opened the door in the firewall, because Willows would certainly have noticed the bright mercury line when he checked with the spectroscope. The stuff must have been released when the pressure dropped.

He walked back to the anteroom and looked at the sampling chamber. There were a few droplets of mercury around the inlet.

Thus far, the three pressure explosions had wrecked about everything that was wreckable, he thought. No, not quite. There was still the chance that the whole station would go if he didn't get back into the control room and stop that "powers of two" chain. The detonation of Instantanium 512 would finish the job by doing what high-pressure helium could never do.

He glanced at the thermometer. The temperature behind the firewall had risen to two-forty Centigrade. It wasn't supposed to be above two hundred. It wasn't too serious, really, because a little heat like that wouldn't bother a Ditmars-Horst reactor, but it indicated that things back there weren't working properly.

He turned away and walked back to the decontamination chamber. There must be some way he could get

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the mercury off the suit—because he couldn't take the suit off until the mercury was gone.

First, he tried scrubbing. That was what showed him how upset he really was. He had actually scrubbed the armor on his left arm free of mercury when he realized what he was doing and threw the brush down in disgust.

"Use your head, de Hooch!" he told himself. What good would it do to scrub the stuff off of the few places he could reach? In the bulky armor, he was worse than muscle-bound. He couldn't touch any part of his back; he couldn't bend far enough to touch his legs. His shoulders were inaccessible, even. Scrubbing was worse than useless—it was time-wasting.

He picked up the brush again and began scrubbing at the other arm. It gave him something to do while he thought. While he was thinking, he wasn't wasting time.

What would dissolve mercury? Nitric acid. Good old HNO_3. Fine. Except that the hot lab was at the other end of the reactor, where the fissure had let all the air out. The bulkheads had dropped, and he couldn't get in. And, naturally, the nitric acid would be in the lab.

For the first time, he found himself hating Willows guts. If he were around, he could get some acid from the cold lab, or even from the other hot lab at Number One. If Willows—

He stood up and dropped the brush. "Dolt! Boob! Moron! Idiot!" Not Willows. Himself. There was no reason on earth—or Luna—why he couldn't walk over to Number One hot lab and get the stuff himself. The habit of never leaving the lab without thorough decontamination was so thoroughly ingrained in him that he had simply never thought about it until that moment. But what did a little contamination with radioactive mercury mean at a time like this? He could take F corridor to Number One, use the decontamination chamber and the acid from the lab, shuck off his armor there, and come back through E corridor. F could be cleaned up later.

So simple.

He went through the light trap to the next chamber and turned the handle on the sliding door. The door wouldn't budge. It had been warped by the force of the helium blast, and it was stuck in its grooves.

Well, there were tools. The thing could be unstuck.

Peter de Hooch was a determined man, a strong man, and a smart man. But the door was more determined and stronger than he was, and his intelligence didn't give him much of an edge right then. After an hour's hard work, he managed to get the door open about eighteen inches. Then it froze fast and refused to move again. All the power and leverage he could bring to bear was useless. The door had opened all it was going to open. Beyond it, he could see the next radiation trap—and freedom.

Eighteen inches would have been plenty of space for him to get through

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

if he had not been wearing the radiation-proof suit. But he didn't dare take that suit off. By the time he got out of the suit, the intensely radioactive mercury on its surface would have made his death only a matter of time. And not much time at that.

He told himself that if it were simply a matter of running to the control room to shut off the D-H reactor, he'd do it. That could have been done before he lost consciousness. But it wasn't that easy. Damping the reaction took time and control. The stuff had to be eased back slowly. Shutting off the Ditmars-Horst would simply blow a hole in the crust of Luna and kill everyone if he did it now. There were four or five men out there who would die if he pulled anything foolish like that. The explosion wouldn't be as powerful as the Instantanium 512 reaction would be, but it would be none the less deadly for all that.

There had to be either a way to scrape the mercury off the suit or a way to open the door another six inches.

Or, he added suddenly, a way to get safely out of the suit.

At the end of another twenty minutes, he had still thought of nothing. He wandered around the decontamination room, looking at everything, hoping he might see something that would give him a clue. He didn't.

He went into the antechamber of the reactor and glared at the door in the firewall. The instruments said that things were getting pretty fierce on the other side of that wall. Temperature: Two ninety-five and still rising. Pressure? He carefully cracked the inlet of the sampling chamber and got a soft hiss. The helium was expanding from the heat, that was all. Part of the trouble with the reactor, he thought, was the high percentage of oxygen and nitrogen that had mixed in during the ten minutes or so that the door was open. All hell was fixing to bust loose in there, and he, Peter de Hooch, was right next to it.

He walked back into the decontamination chamber.

What would dissolve mercury?

Mercury would dissolve gold. Would gold dissolve mercury?

Very funny.

He was like a turtle, de Hooch thought. Perfectly safe as long as he was in his shell, but take him out of it and he would die.

Hell of a way to spend the night, he thought. *A night in shining armor.*

That struck him as funny. He began to laugh. And laugh.

He almost laughed himself sick before he realized that it was fear and despair that were driving him into hysteria, not a sense of humor. He forced himself to calmness.

He must be calm.

He must think.

Yes.

How do you go about getting rid of a radioactive metal that is in effect welded to the outside of your suit?

The trouble was, he was a nucleonics engineer, not a chemist. He remembered quite a bit of his chemis-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

try, of course, but not as much as he would have liked.

Could the stuff be neutralized?

Sure, he told himself. Very simple. All he had to do was go climb into the reactor, and let the reactor do the job. Mercury 203 plus an alpha particle gives nice, stable Lead 207. Just go climb right into the Ditmars-Horst and let the Helium 4 do the job.

But the thought stuck in his mind.

He kept telling himself not to panic as Willows had done.

And several minutes later, chuckling to himself in a half demented fashion, he opened the firewall door and went in to let the helium do the job.

It was nearly eight in the morning, Greenwich time, when the three surface vehicles, with their wide Caterpillar treads lumbered to a halt near the kiosk that marked the entrance to the underground site of the laboratories.

"O.K." said one of the men in the first machine, holding a microphone to his lips, "let's go in. If what Willows said is true, the whole place may blow any minute now, but I'm not asking for volunteers. Nobody will be any safer up here than they will down there, and we have to do a job. Besides, Willows wasn't completely rational. Nobody would put on a vac suit and run away like that if he was in his right mind. So we can discount a lot of what he said when we picked him up on the road.

"The five of us in this car are going straight to Number One Reactor to see what can be done to stop whatever is going on. The rest of you start trying to see if you can get those trapped men out of A and B corridors. All right, let's move in."

Less than five minutes later, five men went into the control room of Number One Reactor. They found Peter de Hooch sound asleep in the control chair, and the instruments showed that the Ditmars-Horst reactor was inactive.

One of the men shook de Hooch gently, awakening him in the middle of a snore.

"What?" he said groggily.

"We're here, Guz. Everything's O.K."

"Sure everything's O.K. Nothing to it. All I did was wait until the temperature got above three fifty-seven Centigrade—above the boiling point of mercury. Then I went in and let the hot helium *boil* the stuff off me. Nothing to it. Near boiled myself alive, but it did the trick."

"What," asked the man in a puzzled voice, "are you talking about?"

"I am a knight in dull armor," said Peter de Hooch, dozing off again.

Then he roused himself a little, and said, without opening his eyes: "Hi yo, Quicksilver, away." And he was sound asleep again.

And when he saw what he had done,
With all his might and main,
He jumped back in that bramble bush
And scratch'd them in again!..■

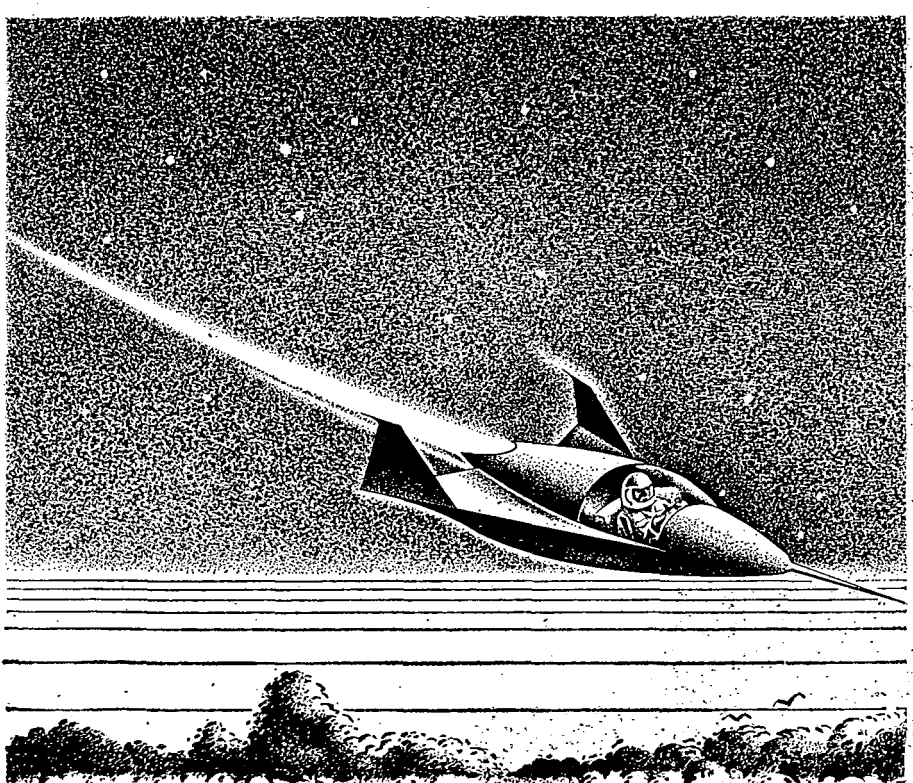
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Watch The Sky

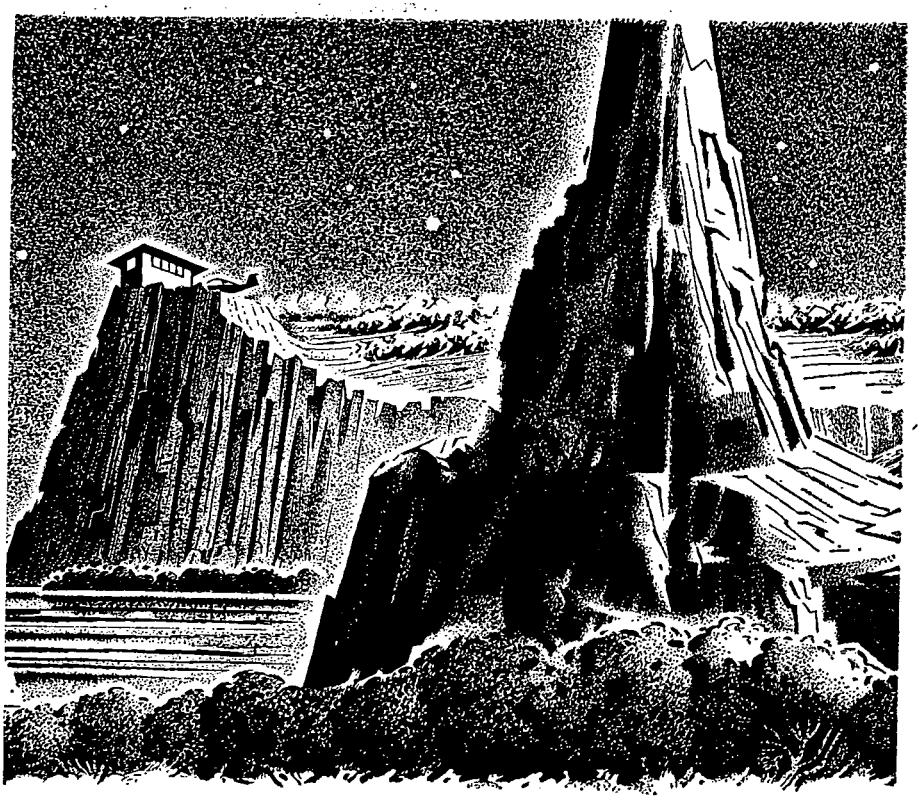
It's one thing to try to get away with what you believe to be a lie and be caught at it—and something different, and far worse sometimes, to find it isn't a lie...

by James H. Schmitz

Illustrated by Hortens



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

■ Uncle William Boles' war-battered old Geest gun gave the impression that at some stage of its construction it had been pulled out of shape and then hardened in that form. What remained of it was all of one piece. The scarred and pitted twin barrels were stubby and thick, and the vacant oblong in the frame behind them might have contained standard energy magazines. It was the stock which gave the alien weapon its curious appearance. Almost eighteen inches long, it curved abruptly to the right and was too thin, knobbed and indented to fit comfortably at any point in a human hand. Over half a century had passed since, with the webbed, boneless fingers of its original owner closed about it, it last spat deadly radiation at human foemen. Now it hung among Uncle William's other collected oddities on the wall above the living room fireplace.

And today, Phil Boles thought, squinting at the gun with reflectively narrowed eyes, some eight years after Uncle William's death, the old war souvenir would quietly become a key factor in the solution of a colonial planet's problems. He ran a finger over the dull, roughened frame, bent closer to study the neatly lettered inscription: GUNDERLAND BATTLE TROPHY, ANNO 2172, SGT. WILLIAM G. BOLES. Then, catching a familiar series of clicking noises from the hall, he straightened quickly and turned away. When Aunt Beulah's go-chair came rolling back into the room, Phil was sitting at the low tea table, his back to the fireplace.

The go-chair's wide flexible treads carried it smoothly down the three steps to the sunken section of the living room, Beulah sitting jauntily erect in it, for all the ninety-six years which had left her the last survivor of the original group of Earth settlers on the world of Roye. She tapped her fingers here and there on the chair's armrests, swinging it deftly about, and brought it to a stop beside the tea table.

"That was Susan Feeney calling," she reported. "And *there* is somebody else for you who thinks I have to be taken care of! Go ahead and finish the pie, Phil. Can't hurt a husky man like you. Got a couple more baking for you to take along."

Phil grinned. "That'd be worth the trip up from Fort Roye all by itself."

Beulah looked pleased. "Not much else I can do for my great-grand nephew nowadays, is there?"

Phil said, after a moment, "Have you given any further thought to—"

"Moving down to Fort Roye?" Beulah pursed her thin lips. "Goodness, Phil, I do hate to disappoint you again, but I'd be completely out of place in a town apartment."

"Dr. Fitzsimmons would be pleased," Phil remarked.

"Oh, him! Fitz is another old worry wart. What he wants is to get me into the hospital. Nothing doing!"

Phil shook his head helplessly, laughed. "After all, working a tupa ranch—"

"Nonsense. The ranch is just enough bother to be interesting. The appliances do everything anyway, and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Susan is down here every morning for a chat and to make sure I'm still all right. She won't admit that, of course, but if she thinks something should be taken care of, the whole Feeney family shows up an hour later to do it. There's really no reason for you to be sending a dozen men up from Fort Roye every two months to harvest the tupa."

Phil shrugged. "No one's ever yet invented an easy way to dig up those roots. And the CLU's glad to furnish the men."

"Because you're its president?"

"Uh-huh."

"It really doesn't cost you anything?" Beulah asked doubtfully.

"Not a cent."

"Hm-m-m. Been meaning to ask you. What made you set up that . . . Colonial Labor Union?"

Phil nodded. "That's the official name."

"Why did you set it up in the first place?"

"That's easy to answer," Phil said. "On the day the planetary population here touched the forty thousand mark, Roye became legally entitled to its labor union. Why not take advantage of it?"

"What's the advantage?"

"More Earth money coming in, for one thing. Of the twelve hundred CLU members we've got in Fort Roye now, seventy-six per cent were unemployed this month. We'll have a compensation check from the Territorial Office with the next ship coming in." He smiled at her expression. "Sure, the boys *could* go back to the tupa ranches. But not everyone likes that life as well as you and the Feeneys."

"Earth government lets you get away with it?" Beulah asked curiously. "They used to be pretty tight-fisted."

"They still are—but it's the law. The Territorial Office also pays any CLU president's salary, incidentally. I don't draw too much at the moment, but that will go up automatically with the membership and my responsibilities."

"What responsibilities?"

"We've set up a skeleton organization," Phil explained. "Now, when Earth government decides eventually to establish a big military base here, they can run in a hundred thousand civilians in a couple of months and everyone will be fitted into the pattern on Roye without trouble or confusion. That's really the reason for all the generosity."

Beulah sniffed. "Big base, my eye! There hasn't been six months since I set foot here that somebody wasn't talking about Fort Roye being turned into a Class A military base pretty soon. It'll never happen, Phil. Roye's a farm planet, and that's what it's going to stay."

Phil's lips twitched. "Well, don't give up hope."

"*I'm* not anxious for any changes," Beulah said. "I like Roye the way it is."

She peered at a button on the go-chair's armrest which had just begun to put out small bright-blue flashes of

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

light. "Pies are done," she announced. "Phil, are you sure you can't stay for dinner?"

Phil looked at his watch, shook his head. "I'd love to, but I really have to get back."

"Then I'll go wrap up the pies for you."

Beulah swung the go-chair around, sent it slithering up the stairs and out the door. Phil stood up quickly. He stepped over to the fireplace, opened his coat and detached a flexible, box-shaped object from the inner lining. He laid this object on the mantle, and turned one of three small knobs about its front edge to the right. The box promptly extruded a supporting leg from each of its four corners, pushed itself up from the mantle and became a miniature table. Phil glanced at the door through which Beulah had vanished, listened a moment, then took the Geest gun from the wall, laid it carefully on top of the device and twisted the second dial.

The odd-looking gun began to sink slowly down through the surface of Phil's instrument, like a rock disappearing in mud. Within seconds it vanished completely; then, a moment later, it began to emerge from the box's underside. Phil let the Geest gun drop into his hand, replaced it on the wall, turned the third knob. The box withdrew its supports and sank down to the mantle. Phil clipped it back inside his coat, closed the coat, and strolled over to the center of the room to wait for Aunt Beulah to return with the pies.

It was curious, Phil Boles reflected as his aircar moved out over the craggy, plunging coastline to the north some while later, that a few bold minds could be all that was needed to change the fate of a world. A few minds with imagination enough to see how circumstances about them might be altered.

On his left, far below, was now the flat ribbon of the peninsula, almost at sea level, its tip widening and lifting into the broad, rocky promontory on which stood Fort Roye—the only thing on the planet bigger and of more significance than the shabby backwoods settlements. And Fort Roye was neither very big nor very significant. A Class F military base around which, over the years, a straggling town had come into existence, Fort Roye was a space-age trading post linking Roye's population to the mighty mother planet, and a station from which the otherwise vacant and utterly unimportant 132nd Segment of the Space Territories was periodically and uneventfully patrolled. It was no more than that. Twice a month, an Earth ship settled down to the tiny port, bringing supplies, purchases, occasional groups of reassigned military and civilians—the latter suspected of being drawn as a rule from Earth's Undesirable classification. The ship would take off some days later, with a return load of the few local products for which there was outside demand, primarily the medically valuable tupa roots; and Fort Roye lay quiet again.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The planet was not at fault. Essentially, it had what was needed to become a thriving colony in every sense. At fault was the Geest War. The war had periods of flare-up and periods in which it seemed to be subsiding. During the past decade it had been subsiding again. One of the early flare-ups, one of the worst, and the one which brought the war closest to Earth itself, was the Gunderland Battle in which Uncle William Boles' trophy gun had been acquired. But the war never came near Roye. The action was all in the opposite section of the giant sphere of the Space Territories, and over the years the war drew steadily farther away.

And Earth's vast wealth—its manpower, materials and money—was pouring into space in the direction the Geest War was moving. Worlds not a tenth as naturally attractive as Roye, worlds where the basic conditions for human life were just above the unbearable point, were settled and held, equipped with everything needed and wanted to turn them into independent giant fortresses, with a population not too dissatisfied with its lot. When Earth government didn't count the expense, life could be made considerably better than bearable almost anywhere.

Those were the circumstances which condemned Roye to insignificance. Not everyone minded. Phil Boles, native son, did mind. His inclinations were those of an operator, and he was not being given an adequate opportunity to exercise them. Therefore, the circumstances would have to be changed, and the precise time to make the change was at hand. Phil himself was not aware of every factor involved, but he was aware of enough of them. Back on Earth, a certain political situation was edging towards a specific point of instability. As a result, an Earth ship which was not one of the regular freighters had put down at Fort Roye some days before. Among its passengers were Commissioner Sanford of the Territorial Office, a well-known politician, and a Mr. Ronald Black, the popular and enterprising owner of Earth's second largest news outlet system. They were on a joint fact-finding tour of the thinly scattered colonies in this remote section of the Territories, and had wound up eventually at the most remote of all—the 132nd Segment and Roye.

That was one factor. Just visible twenty thousand feet below Phil—almost directly beneath him now as the aircar made its third leisurely crossing of the central belt of the peninsula—was another. From here it looked like an irregular brown circle against the peninsula's nearly white ground. Lower down, it would have resembled nothing so much as the broken and half-decayed spirals of a gigantic snail shell, its base sunk deep in the ground and its shattered point rearing twelve stories above it. This structure, known popularly as "the ruins" in Fort Roye, was supposed to have been the last stronghold of a semiintelligent race native to Roye, which might have become extinct barely a century before the Earthmen

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

arrived. A factor associated with the ruins again was that their investigation was the passionately pursued hobby of First Lieutenant Norman Vaughn, Fort Roye's Science Officer.

Add to such things the reason Roye was not considered in need of a serious defensive effort by Earth's strategists—the vast distances between it and any troubled area, and so the utter improbability that a Geest ship might come close enough to discover that here was another world as well suited for its race as for human beings. And then a final factor: the instrument attached to the lining of Phil's coat—a very special "camera" which now carried the contact impressions made on it by Uncle William's souvenir gun. Put 'em all together, Phil thought cheerily, and they spelled out interesting developments on Roye in the very near future.

He glanced at his watch again, swung the aircar about and started back inland. He passed presently high above Aunt Beulah's tupa ranch and that of the Feeney family two miles farther up the mountain, turned gradually to the east and twenty minutes later was edging back down the ranges to the coast. Here in a wild, unfarmed region, perched at the edge of a cliff dropping nearly nine hundred feet to the swirling tide, was a small, trim cabin which was the property of a small, trim Fort Roye lady named Celia Adams. Celia had been shipped out from Earth six years before, almost certainly as an Undesirable, though only the Territorial Office and Celia herself knew about that, the Botany Bay aspect of worlds like Roye being handled with some tact by Earth.

Phil approached the cabin only as far as was necessary to make sure that the dark-green aircar parked before it was one belonging to Major Wayne Jackson, the Administration Officer and second in command at Fort Roye —another native son and an old acquaintance. He then turned away, dropped to the woods ten miles south and made a second inconspicuous approach under cover of the trees. There might be casual observers in the area, and while his meeting with Jackson and Celia Adams today revealed nothing in itself, it would be better if no one knew about it.

He grounded the car in the forest a few hundred yards from the Adams cabin, slung a rifle over his shoulder and set off along a game path. It was good hunting territory, and the rifle would explain his presence if he ran into somebody. When he came within view of the cabin, he discovered Celia and her visitor on the covered back patio, drinks standing before them. Jackson was in hunting clothes. Phil remained quietly back among the trees for some seconds watching the two, aware of something like a last-minute hesitancy. A number of things passed slowly through his mind.

What they planned to do was no small matter. It was a hoax which should have far-reaching results, on a gigantic scale. And if Earth government realized it had been hoaxed, the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

thing could become very unpleasant. That tough-minded central bureaucracy did not ordinarily bother to obtain proof against those it suspected. The suspicion was enough. Individuals and groups whom the shadow of doubt touched found themselves shunted unobtrusively into some backwater of existence and kept there. It was supposed to be very difficult to emerge from such a position again.

In the back of his mind, Phil had been conscious of that, but it had seemed an insignificant threat against the excitement arising from the grandiose impudence of the plan, the perhaps rather small-boyish delight at being able to put something over, profitably, on the greatest power of all. Even now it might have been only a natural wariness that brought the threat up for a final moment of reflection. He didn't, of course, want to incur Earth government's disapproval. But why believe that he might? On all Roye there would be only three who knew—Wayne Jackson, Celia Adams, and himself. All three would benefit, each in a different way, and all would be equally responsible for the hoax. No chance of indiscretion or belated qualms there. Their own interest ruled it out in each case.

And from the other men now involved there was as little danger of betrayal. Their gain would be vastly greater, but they had correspondingly more to lose. They would take every step required to insure their protection, and in doing that they would necessarily take the best of care of Phil Boles.

"How did you ever get such a thing smuggled in to Roye?" Phil asked. He'd swallowed half the drink Celia offered him at a gulp and now, a few minutes later, he was experiencing what might have been under different circumstances a comfortable glow, but which didn't entirely erase the awareness of having committed himself at this hour to an irrevocable line of action.

Celia stroked a fluffy lock of red-brown hair back from her forehead and glanced over at him. She had a narrow, pretty face, marred only by a suggestion of hardness about the mouth—which was a little more than ordinarily noticeable just now. Phil decided she felt something like his own tensions, for identical reasons. He was less certain about Major Wayne Jackson, a big, loose-jointed man with an easy-going smile and a pleasantly self-assured voice. The voice might be veering a trifle too far to the hearty side; but that was all.

"I didn't," Celia said. "It belonged to Frank. How he got it shipped in with him—or after him—from Earth I don't know. He never told me. When he died a couple of years ago, I took it over."

Phil gazed reflectively at the row of unfamiliar instruments covering half the table beside her. The "camera" which had taken an imprint of the Geest gun in Aunt Beulah's living room went with that equipment and had become an interior section of the largest of the instruments. "What do you call it?" he asked.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Celia looked irritated. Jackson laughed, said, "Why not tell him? Phil's feeling like we do—this is the last chance to look everything over, make sure nobody's slipped up, that nothing can go wrong. Right, Phil?"

Phil nodded. "Something like that."

Celia chewed her lip. "All right," she said. "It doesn't matter, I suppose —compared with the other." She tapped one of the instruments. "The set's called a duplicator. This one's around sixty years old. They're classified as a forgery device, and it's decidedly illegal for a private person to build one, own one, or use one."

"Why that?"

"Because forgery is ordinarily all they're good for. Frank was one of the best of the boys in that line before he found he'd been put on an outtransfer list."

Phil frowned. "But if it can duplicate any manufactured object—"

"It can. At an average expense around fifty times higher than it would take to make an ordinary reproduction without it. A duplicator's no use unless you want a reproduction that's absolutely indistinguishable from the model."

"I see." Phil was silent a moment. "After sixty years—"

"Don't worry, Phil," Jackson said. "It's in perfect working condition. We checked that on a number of samples."

"How do you know the copies were really indistinguishable?"

Celia said impatiently, "Because that's the way the thing works. When the Geest gun passed through the model plate, it was analyzed down to its last little molecule. The duplicate is now being built up from that analysis. Every fraction of every element used in the original will show up again exactly. Why do you think the stuff's so expensive?"

Phil grinned. "All right, I'm convinced. How do we get rid of the inscription?"

"The gadget will handle that," Jackson said. "Crack that edge off, treat the cracked surface to match the wear of the rest." He smiled. "Makes an Earth forger's life look easy, doesn't it?"

"It is till they hook you," Celia said shortly. She finished her drink, set it on the table, added, "We've a few questions, too, Phil."

"The original gun," Jackson said. "Mind you, there's no slightest reason to expect an investigation. But after this starts rolling, our necks will be out just a little until we've got rid of that particular bit of incriminating evidence."

Phil pursed his lips. "I wouldn't worry about it. Nobody but Beulah ever looks at Uncle William's collection of oddities. Most of it's complete trash. And probably only she and you and I know there's a Geest gun among the things—William's cronies all passed away before he did. But if the gun disappeared now, Beulah would miss it. And that—since Earth government's made it illegal to possess Geest artifacts—*might* create attention."

Jackson fingered his chin thought-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

fully, said, "Of course, there's always a way to make sure Beulah didn't kick up a fuss."

Phil hesitated. "Dr. Fitzsimmons gives Beulah another three months at the most," he said. "If she can stay out of the hospital for even the next eight weeks, he'll consider it some kind of miracle. That should be early enough to take care of the gun."

"It should be," Jackson said. "However, if there does happen to be an investigation before that time—"

Phil looked at him, said evenly, "We'd do whatever was necessary. It wouldn't be very agreeable, but my neck's out just as far as yours."

Celia laughed. "That's the reason we can all feel pretty safe," she observed. "Every last one of us is completely selfish—and there's no more dependable kind of person than that."

Jackson flushed a little, glanced at Phil, smiled. Phil shrugged. Major Wayne Jackson, native son, Fort Roye's second in command, was scheduled for the number one spot and a string of promotions via the transfer of the current commander, Colonel Thayer. Their Earthside associates would arrange for that as soon as the decision to turn Fort Roye into a Class A military base was reached. Phil himself could get by with the guaranteed retention of the CLU presidency, and a membership moving up year by year to the half million mark and beyond—he could get by very, very comfortably, in fact. While Celia Adams would develop a discreetly firm hold on every upcoming minor racket, facilitated by iron-clad protection and an enforced lack of all competitors.

"We're all thinking of Roye's future, Celia," Phil said amiably, "each in his own way. And the future looks pretty bright. In fact, the only possible stumbling block I can still see is right here on Roye, and it's Honest Silas Thayer. If our colonel covers up the Geest gun find tomorrow—"

Jackson grinned, shook his head. "Leave that to me, my boy—and to our very distinguished visitors from Earth. Commissioner Sanford has arranged to be in Thayer's company on Territorial Office business all day tomorrow. Science Officer Vaughn is dizzy with delight because Ronald Black and most of the newsgathering troop will inspect his diggings in the ruins in the morning, with the promise of giving his theories about the vanished natives of Roye a nice spread on Earth. Black will happen to ask me to accompany the party. Between Black and Sanford—and myself—Colonel Silas Thayer won't have a chance to suppress the discovery of a Geest gun on Roye until the military has had a chance to look into it fully. And the only one he can possibly blame for that will be Science Officer Norm Vaughn—for whom, I'll admit, I feel just a little bit sorry!"

First Lieutenant Norman Vaughn was an intense and frustrated young man whose unusually thick contact lenses and wide mouth gave him some resemblance to a melancholy frog. He suspected, correctly, that a

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

good Science Officer would not have been transferred from Earth to Roye which was a planet deficient in scientific problems of any magnitude, and where requisitions for research purposes were infrequently and grudgingly granted.

The great spiraled ruin on the peninsula of Fort Roye had been Vaughn's one solace. Several similar deserted structures were known to be on the planet, but this was by far in the best condition and no doubt the most recently built. To him, if to no one else, it became clear that the construction had been carried out with conscious plan and purpose, and he gradually amassed great piles of notes to back up his theory that the vanished builders were of near-human intelligence. Unfortunately, their bodies appeared to have lacked hard and durable parts, since nothing that could be construed as their remains was found; and what Lieutenant Vaughn regarded as undeniable artifacts, on the level of very early Man's work, looked to others like chance shards and lumps of the tough, shell-like material of which the ruins were composed.

Therefore, while Vaughn was—as Jackson had pointed out—really dizzy with delight when Ronald Black, that giant of Earth's news media, first indicated an interest in the ruins and his theories about them, this feeling soon became mixed with acute anxiety. For such a chance surely would not come again if the visitors remained unconvinced by what he showed them, and what—actually—did he have to show? In the morning, when the party set out, Vaughn was in a noticeably nervous frame of mind.

Two hours later, he burst into the anteroom of the base commander's office in Fort Roye, where the warrant on duty almost failed to recognize him. Lieutenant Vaughn's eyes glittered through their thick lenses; his face was red and he was grinning from ear to ear. He pounded past the startled warrant, pulled open the door to the inner office where Colonel Thayer sat with the visiting Territorial Commissioner, and plunged inside.

"Sir," the warrant heard him quaver breathlessly, "I have the proof—the undeniable proof! They *were* intelligent beings. They did *not* die of disease. They were exterminated in war! They were . . . but see for yourself!" There was a thud as he dropped something on the polished table top between the commissioner and Colonel Thayer. "*That* was dug up just now—among their own artifacts!"

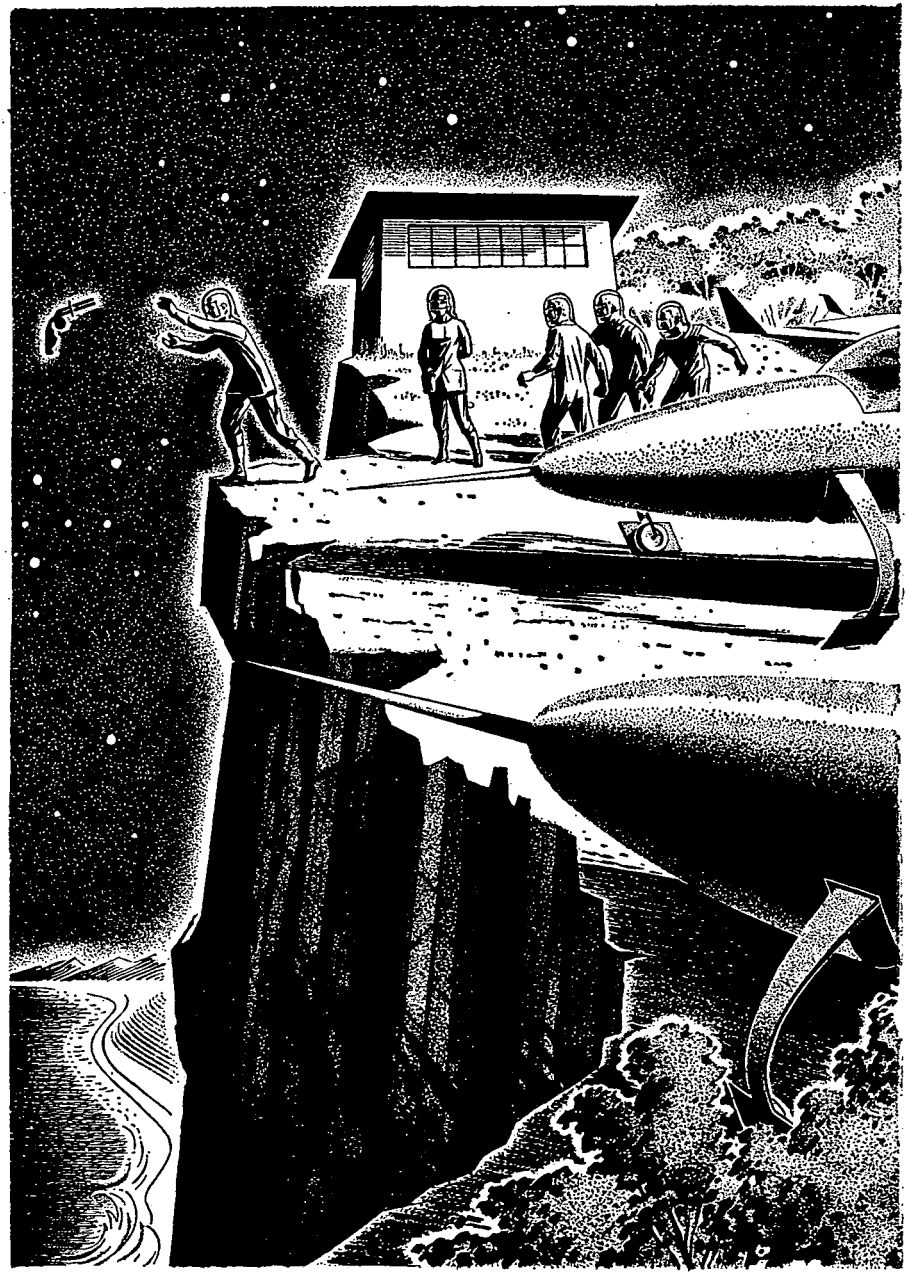
Silas Thayer was on his feet, sucking in his breath for the blast that would hurl his blundering Science Officer back out of the office. What halted him was an odd, choked exclamation from Commissioner Sanford. The colonel's gaze flicked over to the visitor, then followed Sanford's stare to the object on the table.

For an instant, Colonel Thayer froze.

Vaughn was bubbling on: "And, sir, I . . ."

"Shut up!" Thayer snapped. He

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

continued immediately, "You say this was found in the diggings in the ruins?"

"Yes, sir—just now! It's . . ."

Lieutenant Vaughn checked himself under the colonel's stare, some dawning comprehension of the enormous irregularities he'd committed showing in his flushed face. He licked his lips uncertainly.

"You will excuse me for a moment, sir," Thayer said to Commissioner Sanford. He picked the Geest gun up gingerly by its unmistakably curved shaft, took it over to the office safe, laid it inside and relocked the safe. He then left the office.

1

In an adjoining room, Thayer rapped out Major Wayne Jackson's code number on a communicator. He heard a faint click as Jackson's wrist speaker switched on, and said quickly, "Wayne, are you in a position to speak?"

"I am at the moment," Jackson's voice replied cautiously.

Colonel Thayer said, "Norm Vaughn just crashed in here with something he claims was found in the diggings. Sanford saw it, and obviously recognized it. We might be able to keep him quiet. But now some questions. Was that item actually dug up just now?"

"Apparently it was," Jackson said. "I didn't see it happen—I was talking to Black at the moment. But there are over a dozen witnesses who claim they did see it happen, including five or six of the new agency men."

"And they knew what it was?"

"Enough of them did."

Thayer cursed softly. "No chance that one of them pitched the thing into the diggings for an Earthside sensation?"

"I'm afraid not," Jackson said. "It was lying in the sifter after most of the sand and dust had been blown away."

"Why didn't you call me at once?"

"I've been holding down something like a mutiny here, Silas. Vaughn got away before I could stop him, but I grounded the other aircars till you could decide what to do. Our visitors don't like that. Neither do they like the fact that I've put a guard over the section where the find was made, and haven't let them talk to Norm's work crew.

Ronald Black and his staff have been fairly reasonable, but there's been considerable mention of military highhandedness made by the others. This is the first moment I've been free."

"You did the right thing," Thayer said, "but I doubt it will help much now. Can you get hold of Ronald Black?"

"Yes, he's over there . . ."

"Colonel Thayer?" another voice inquired pleasantly a few seconds later.

"Mr. Black," the colonel said carefully, "what occurred in the diggings a short while ago may turn out to be a matter of great importance."

"That's quite obvious, sir."

"And that being the case," the colonel went on, "do you believe it would be possible to obtain a gentleman's

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

agreement from all witnesses to make no mention of this apparent discovery until the information is released through the proper channels? I'm asking for your opinion."

"Colonel Thayer," Ronald Black's voice said, still pleasantly, "my opinion is that the only way you could keep the matter quiet is to arrest every civilian present, including myself, and hold us incommunicado. You have your duty, and we have ours. Ours does not include withholding information from the public which may signal the greatest shift in the conduct of the Geest War in the past two decades."

"I understand," Thayer said. He was silent for some seconds, and perhaps he, too, was gazing during that time at a Fort Roye of the future—a Class A military base under his command, with Earth's great war vessels lined up along the length of the peninsula.

"Mr. Black," he said, "please be so good as to give your colleagues this word from me. I shall make the most thorough possible investigation of what has occurred and forward a prompt report, along with any material evidence obtained, to my superiors on Earth. None of you will receive any other statement from me or from anyone under my command. An attempt to obtain such a statement will, in fact, result in the arrest of the person or persons involved. Is that clear?"

"Quite clear, Colonel Thayer," Ronald Black said softly. "And entirely satisfactory."

We have known for the past eight weeks," the man named Cranehart said, "that this was not what it appears to be . . . that is, a section of a Geest weapon."

He shoved the object in question across the desk towards Commissioner Sanford and Ronald Black. Neither of the two attempted to pick it up; they glanced at it, then returned their eyes attentively to Cranehart's face.

"It is, of course, an excellent copy," Cranehart went on, "produced with a professional forger's equipment. As I imagine you're aware, that should have made it impossible to distinguish from the original weapon. However . . . there's no real harm in telling you this now . . . Geest technology has taken somewhat different turns than our own. In their weapons they employ traces of certain elements which we are only beginning to learn to maintain in stable form. That is a matter your government has kept from public knowledge because we don't wish the Geests to learn from human prisoners how much information we are gaining from them.

"The instrument which made this copy naturally did not have such elements at its disposal. So it employed their lower homologues and in that manner successfully produced an almost identical model. In fact, the only significant difference is that such a gun, if it had been a complete model, could not possibly have been fired." He smiled briefly. "But that, I think you will agree, *is* a significant differ-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ence! We knew as soon as the so-called Geest gun was examined that it could only have been made by human beings."

"Then," Commissioner Sanford said soberly, it's apparent discovery on Roye during our visit was a deliberate hoax—"

Cranehart nodded. "Of course."

Ronald Black said, "I fail to see why you've kept this quiet. You needn't have given away any secrets. Meanwhile the wave of public criticism at the government's seeming hesitancy to take action on the discovery—that is, to rush protection to the threatened Territorial Segments—has reached almost alarming proportions. You could have stopped it before it began two months ago with a single announcement."

"Well, yes," Cranehart said. "There were other considerations. Incidentally, Mr. Black, we are not unappreciative of the fact that the news media under your own control exercised a generous restraint in the matter."

"For which," Black said dryly, "I am now very thankful."

"As for the others," Cranehart went on, "the government has survived periods of criticism before. That is not important. The important thing is that the Geest War has been with us for more than a human life span now . . . and it becomes difficult for many to bear in mind that until its conclusion no acts that might reduce our ability to prosecute it can be tolerated."

Ronald Black said slowly, "So you've been delaying the announcement until you could find out who was responsible for the hoax."

"We were interested," Cranehart said, "only in the important men—the dangerous men. We don't care much who else is guilty of what. This, you see, is a matter of expediency, not of justice." He looked for a moment at the politely questioning, somewhat puzzled faces across the desk, went on, "When you leave this room, each of you will be conducted to an office where you will be given certain papers to sign. That is the first step."

There was silence for some seconds. Ronald Black took a cigarette from a platinum case, tapped it gently on the desk, put it to his mouth and lit it. Cranehart went on, "It would have been impossible to unravel this particular conspiracy if the forgery had been immediately exposed. At that time, no one had taken any obvious action. Then, within a few days—with the discovery apparently confirmed by our silence—normal maneuverings in industry and finance were observed to be under way. If a major shift in war policy was pending, if one or more key bases were to be established in Territorial Segments previously considered beyond the range of Geest reconnaissance and therefore secure from attack, this would be to somebody's benefit on Earth."

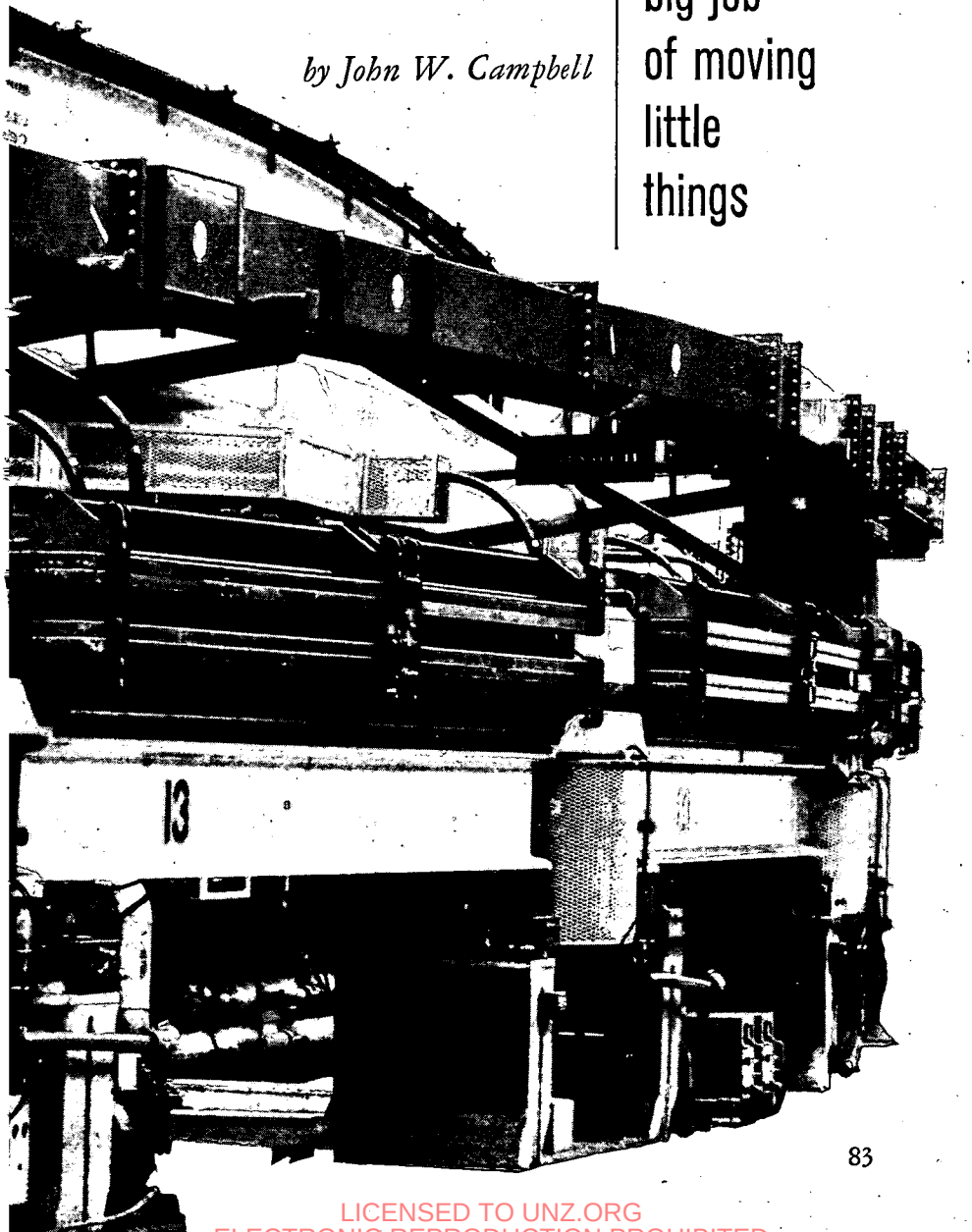
"Isn't it always?" Black murmured.

"Of course. It's a normal procedure, ordinarily of no concern to government. *Continued on page 157*

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The big job of moving little things

by John W. Campbell



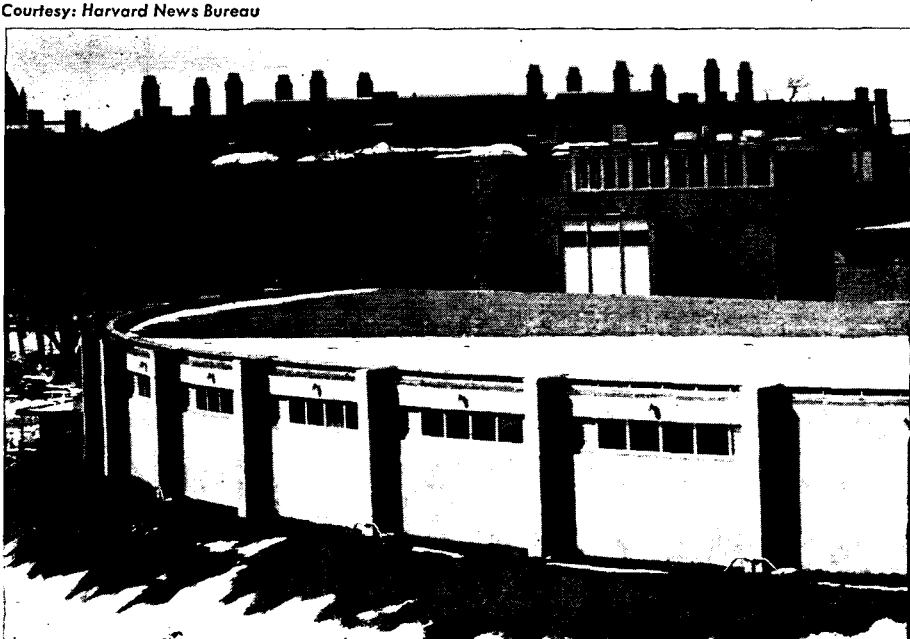
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

This March, the Cambridge Electron Accelerator finally started operating. A joint operation of M.I.T., Harvard and the A.E.C., it is located on the Harvard campus, and is a $12 million facility occupying a series of special buildings, and the ground under them, and is designed to manipulate the smallest particles known . . . electrons.

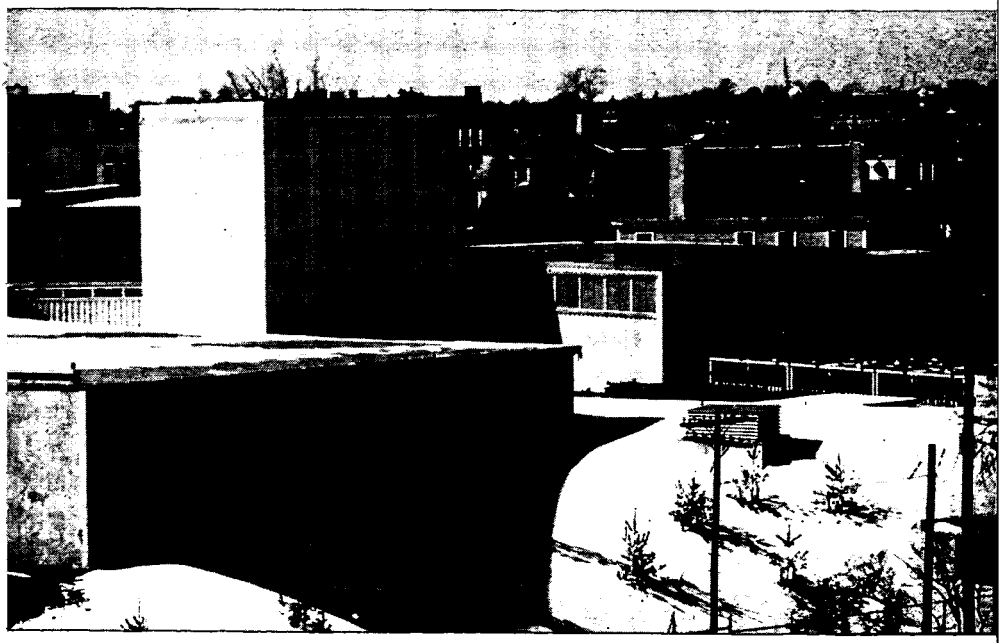
The pictures accompanying this piece fall into two groups—those taken in March of 1962, and supplied by Harvard University News Office, and a group taken in March of 1959, when I paid a visit to the facility then under construction. Neither group of pictures alone could adequately present the story of the immense size of the equipment, and the size of the construction and design problem.

Fig. 1 is the external appearance of the buildings, set amongst the older style buildings of the Harvard campus in Cambridge.

Courtesy: Harvard News Bureau



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

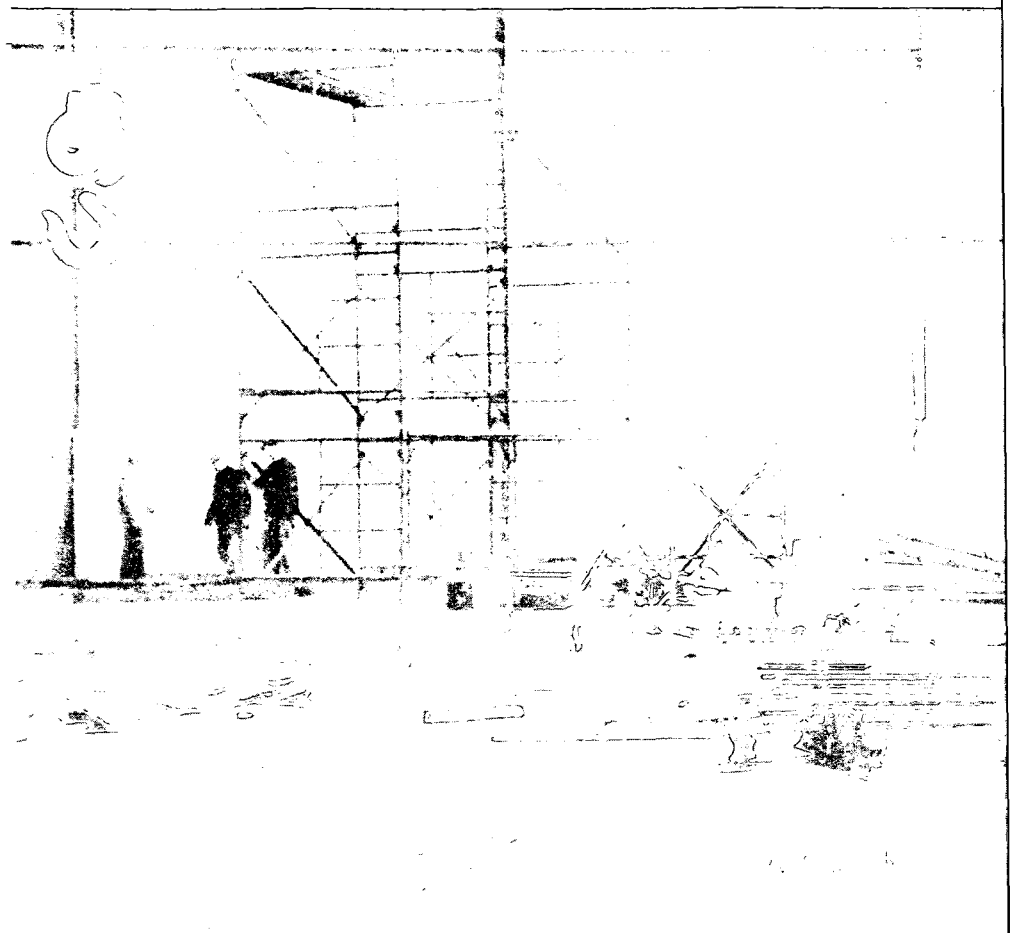


LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Fig. 2 Two shots spliced together, taken in 1959, show the huge experimental area under construction. At the extreme left, vanishing into the gloom, is the immensely massive concrete shielding wall that protects the experimental area from stray radiation from the 6 billion-electron-volt beam, and the mouth of one of the tunnels from the experimental area to the accelerator proper. The 40-ton crane in the foreground is not just a construction

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Photo: J. W. Campbell

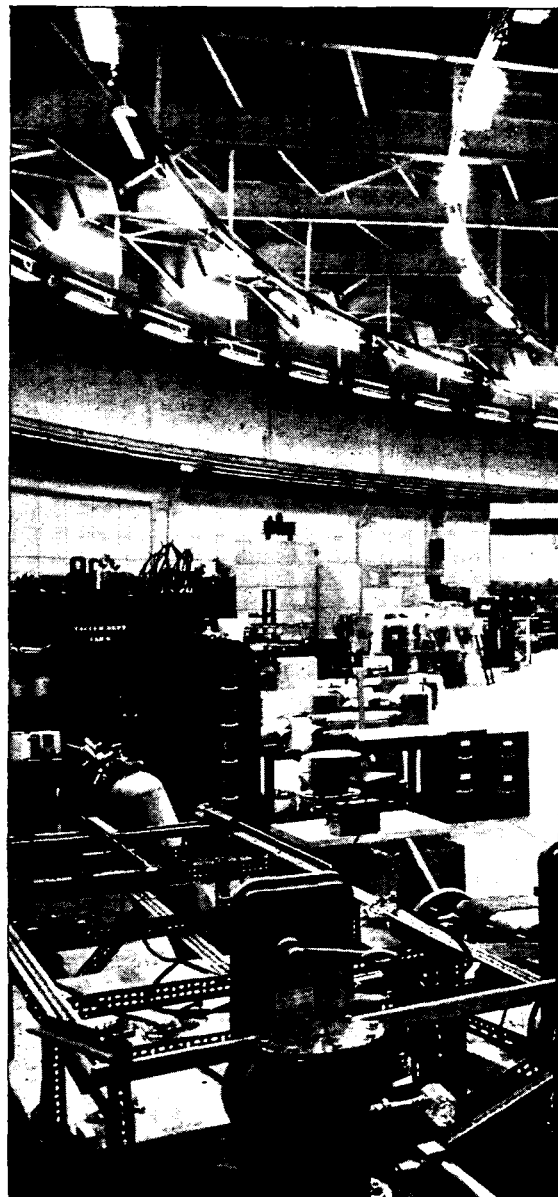


device; it was the first piece of the experimental operating equipment to be installed and put to work. The kind of experimental equipment used on 6 BEV electron beams isn't moved around by hand! Huge concrete and metal radiation shielding slabs, and heavy experimental equipment must be manipulated.

The two shots here were taken with a Nikon, using the standard 50mm F 1.4 lens.

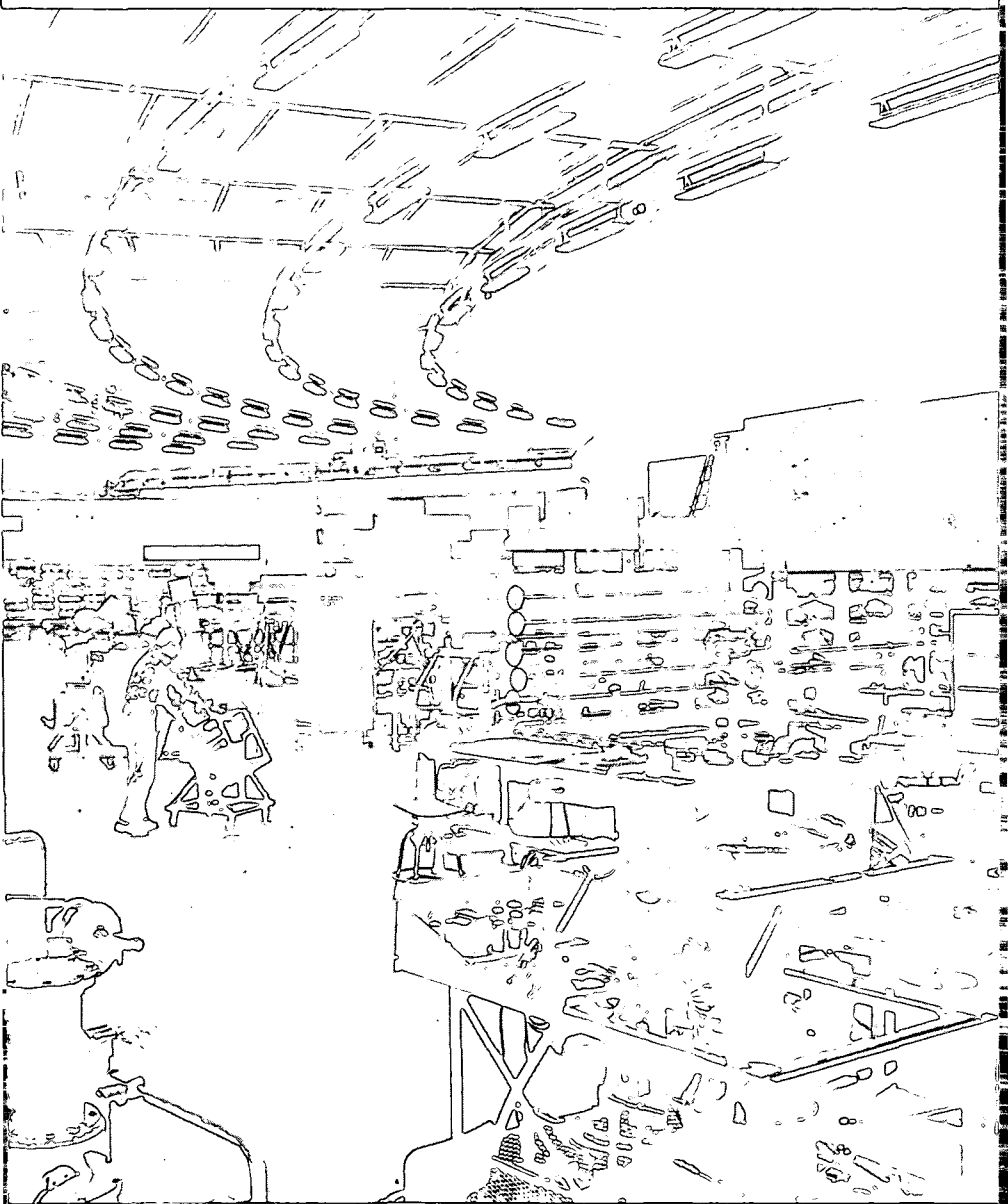
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Fig. 3. The experimental area in March, 1962—taken looking in the opposite direction, and, evidently, with a wide-angle lens. The area is about as big as a football field, and is equipped so that six separate experiments can be set up—or be in process of set-up or knock down—simultaneously, while the 6 BEV beam can be shunted into any one of the six experimental arrays.
The lighting had been greatly improved by March, 1962!



Courtesy: Harvard News Bureau

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Photos: J. W. Campbell

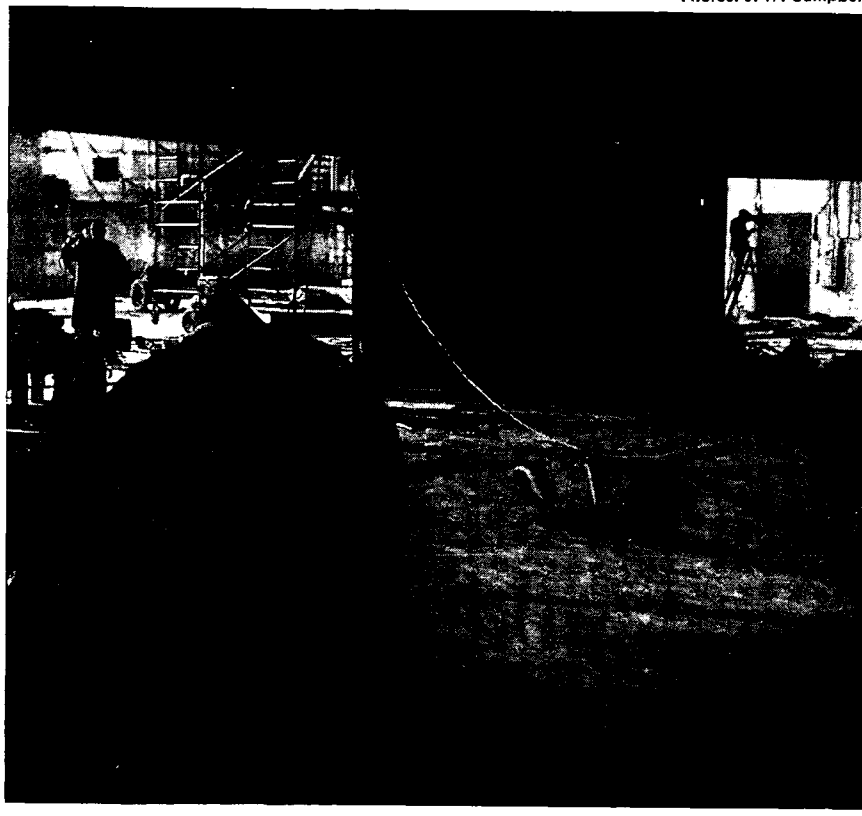


Fig. 4 "Subway under construction" best described the feeling one got in March, 1959. This is inside the circular tunnel where, today, the great magnets and wave-guides and other equipment of the accelerator are, looking out through the experimental "windows" into the huge experimental area. That pillar in the center of the picture is a downward extension of the 16-foot thick concrete shielding wall.

Fig. 5 In 1959, bare 60-watt bulbs at 75-foot intervals, raw concrete, and echoing emptiness predominated. At the left is the short tangential tunnel where the linear accelerator "injector" is located today. Here, a 25 MEV linear accelerator takes a bunch of electrons

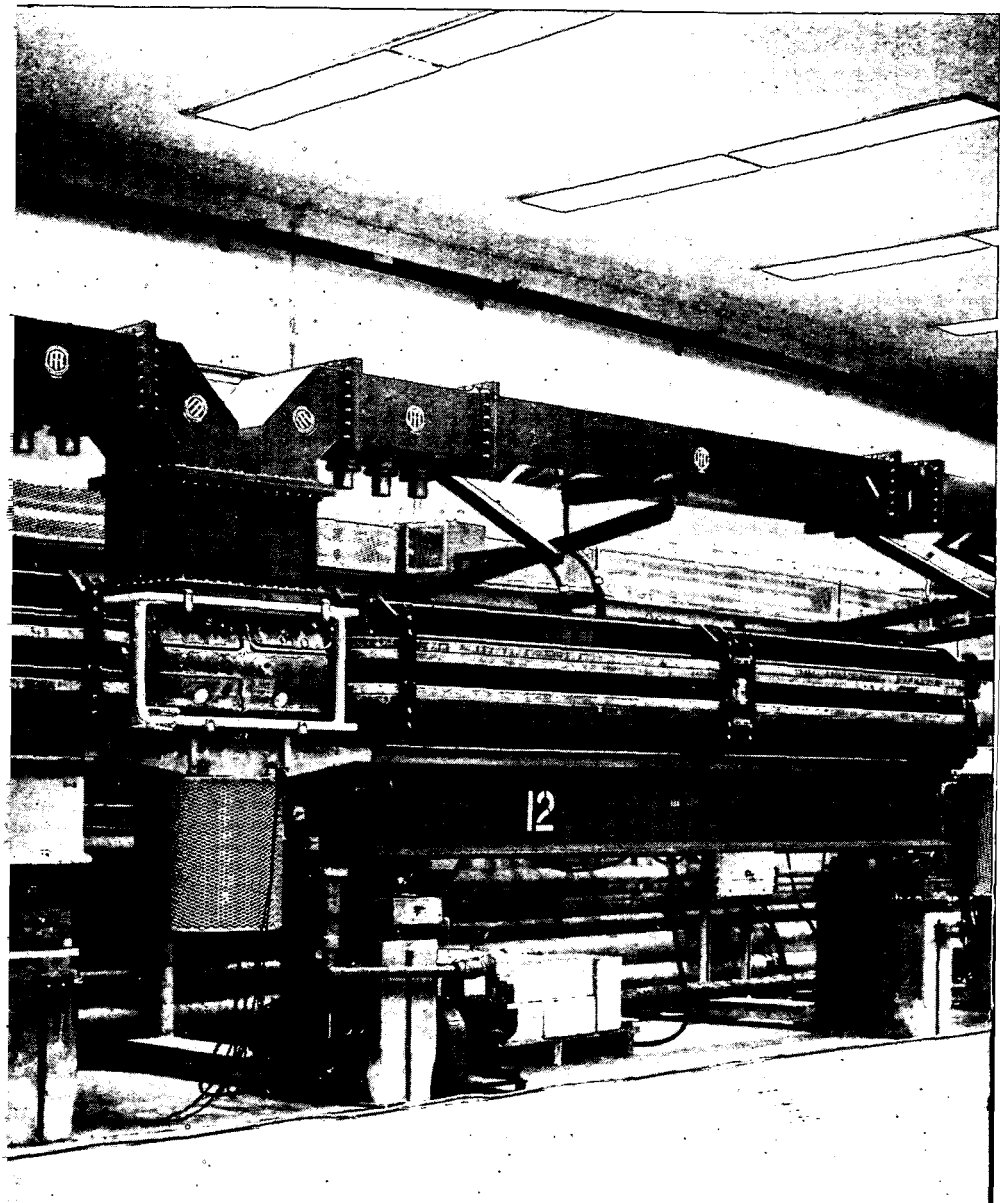
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

and accelerates them from rest to 25 MEV energy. At that energy, they are traveling so near the speed of light that further velocity *change can be essentially neglected—added energy becomes almost purely an increase in mass.*

The 25 MEV electrons from the linear accelerator at the left, are injected into the main circular magnet-ring, shooting approximately through the spot where this picture was taken, into the main accelerator. In a time minutely greater than it would take light to make a trip around the ring, they would come out of the tunnel on the right for the second trip around—the second of some 10,000 trips!

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Courtesy: Harvard News Bureau



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

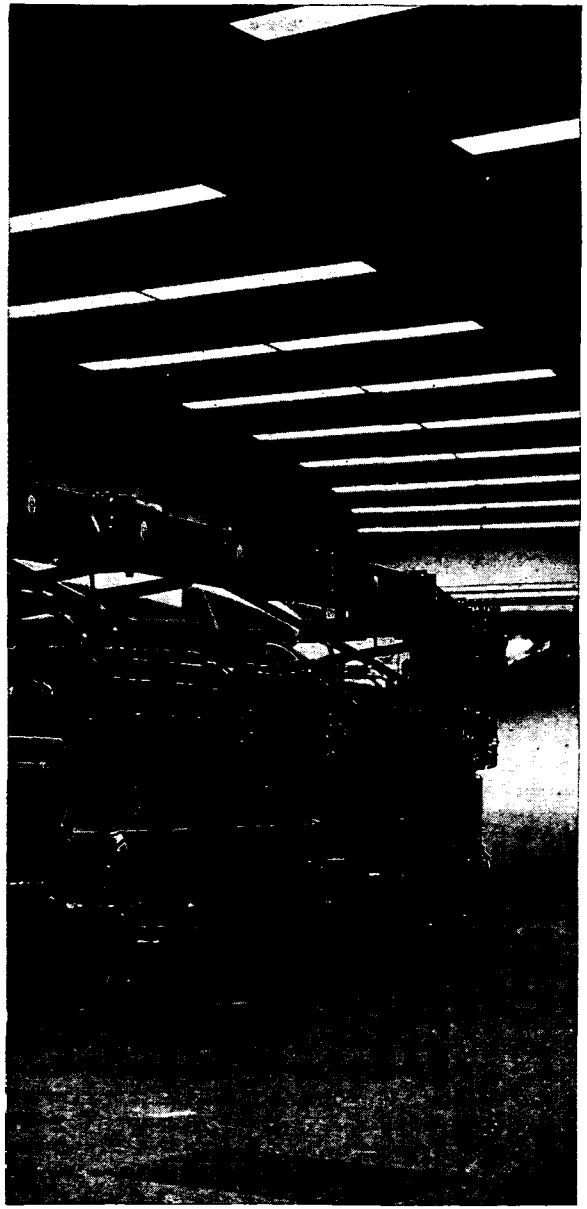
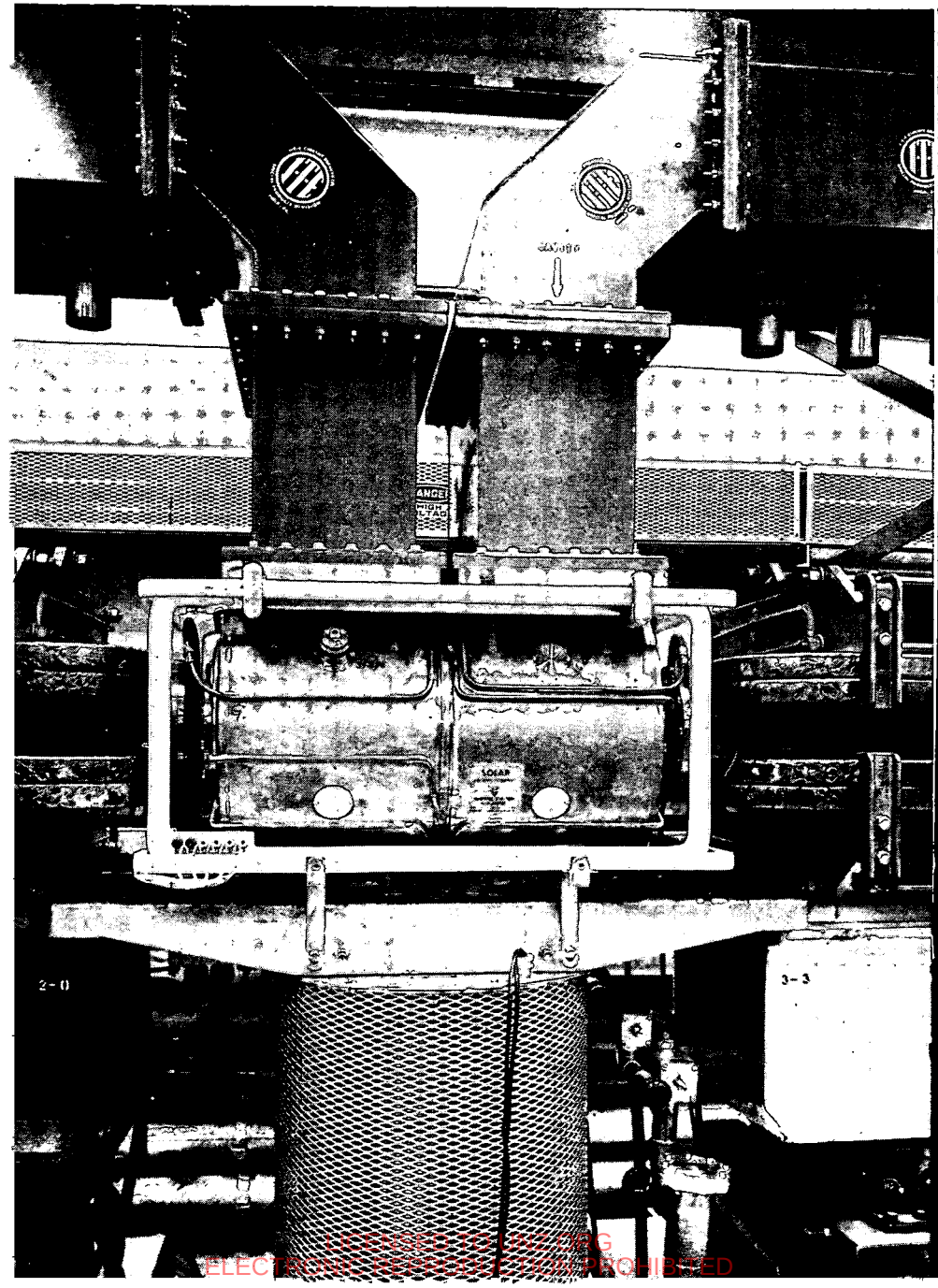


Fig 6. A segment of the ring, 236 feet in diameter, in the shielding tunnel, March, 1962. The electrons orbit in a stainless steel track that runs between the jaws of 48 C-shaped electromagnets. Several sections appear in this shot; each magnet is twelve feet long, set on the numbered steel beams resting on the reinforced concrete pillars. (The reinforcing rods for these pillars appear protruding from the floor in Fig. 5) At the extreme left is one of the sixteen radiofrequency resonant cavities which applies the accelerating potentials to the electrons; each one gives two kicks to the electrons on each pass—and the electrons make 10,000 passes!—as they move from end to end of the cavity. (Remember the electrons are moving at a speed so close to c, *the velocity of light, as to by practically indistinguishable from it.) The cavities are resonant at 475 megacycles; they're fed by the big rectangular wave guides from high-power klystrons banked at the powerhouse in the center of the tunnel's circle.*

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Fig. 7 Close-up of one of the resonant cavity boosters—and the ends of a couple of the 12-foot long magnets. Making 16 of these 475 megacycle cavities, all the hundreds of feet of wave-guide, the banks of high-power klystrons of the main accelerator, and the klystrons operating in the linear accelerator injector behave must have been a nightmare to the engineering gang setting this up! They must all resonate exactly on the same frequency—and all the wave-guide lengths must be just right, and maintain the phase-angle timing exactly right . . . and there must be no *leaks into the absolutely hard vacuum in the entire half-mile or so of complex RF plumbing! Getting all that widely-distributed-in-space equipment working together is itself a major engineering feat!*

And the whole thing is modulated by a 60-cycle powerline frequency. The injector shoots in a burst of electrons; for a fraction of a second, as the cycle builds up, they are accelerated around the ring. The magnet field-strength rises to a peak of some 8,000 gauss, while the voltage across the resonant cavities peaks from 20,000 up toward 200,000. (Making added problems of insulation for the RF plumbers!)

Then, after some 10,000 circuits around the ring, a magnetic deflector diverts the bunched electrons out of the ring, into the experimental area.

At this point, each electron, which had a mass only about 1/1800th that of a proton has acquired so much energy it now outweighs six protons!

Courtesy: Harvard News Bureau

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Summary

The point of this mountain of equipment is, in essence, to produce a high-resolution electron-microscope. At these enormous energies, the effective wave length of an electron becomes so minute that it can "illuminate" even the tiny protons and neutrons of an atomic nucleus.

Nearly all the high-energy investigation of nuclei has been done with protons, deutrons and alpha particles but, if you want to study the proton-proton binding forces inside a nucleus, using a proton as your probe has difficulties. It is of the same nature as the particles you're investigating.

You can't tell your cue-ball from the other two!

Using electrons as probes, you can study the proton-proton forces without being misled by the "cue-ball confusion" effect.

The reason it hasn't been done very extensively earlier is that accelerating electrons to these extreme energies (0.999999996 the speed of light!) has some very nasty problems. Old Clerk-Maxwell showed that an accelerated electron would radiate; an electron forced to travel in a curve is being accelerated sidewise—and it radiates.

The reason the Cambridge Electron Accelerator doesn't go above 6 BEV lies in that fact. At the peak of the cycle, each electron is getting two 200,000 volt kicks at each cavity, then shooting through a twelve-foot magnet, which curves its path enough to get it to the next cavity. In that twelve feet of slightly curved path—the radius of curvature is one hundred eighteen feet—an electron radiates just about 400,000 volts of energy!

It becomes impractical to try to accelerate them beyond that point, obviously.

At the start of the cycle, when the electrons are just building up from their 25 MEV entering energy, they begin to radiate in the infra-red range, then as they speed up, in the visible light region. At the end, they are putting out floods of X rays . . . which is why the whole ring has to be massively shielded with many feet of earth, and concrete walls up to sixteen feet thick . . . and is another reason for calling a halt on further acceleration!

This radiation caused by curving the path of a fast-moving charged particle is called "synchrotron radiation", and is an important phenomenon also in astrophysics. The Crab Nebula, for one instance, shines quite largely because of this same type of phenomenon. ■

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The color of space

■ The color photograph on our cover this month shows the Great Nebula in Orion—it's the fuzzy-looking "star" halfway down in Orion's "sword", visible on any clear winter night—and conspicuous in Earth's winter skies, because it's a region in which vast dust and gas clouds are in process of forming into new stars at this epoch—and, as galactic distances go, it's just next door. Some five hundred light-years to the general area of the Orion system, with two super-giant stars to help make it conspicuous, blue-white Rigel and red Betelgeuse.

The picture was made on High Speed Anscochrome film, using the great 200-inch telescope at Palomar Mountain; it is one of a magnificent series of color photographs the Palomar Observatory has made, some with the 200-inch F 3.5 telescope, some with the 48-inch F 2.5 Schmidt camera. The transparencies are copyrighted by the California Institute of Technology, and through their courtesy, we are able to publish this one.

At first glance, it seems like a simple enough thing to do—given a handy 175,000 millimeter F 3.5 lens, that is! Actually, these photographs represent a very real technical triumph on the part of a team of Palomar astrophysicists and Ansco film and photochemical technicians. If it weren't an extremely difficult job, there would have been such color pictures of astronomical objects long since. They represent a real achievement both astronomically and photographically.

Almost everyone has used color film these days, and nearly everyone is aware of the problem of matching the film to the type of light-source—particularly with color-transparency films such as Anscochrome High Speed film, Ektachrome, Kodachrome, etcetera, although the color-negative films also present that problem. There are "daylight" films and "tungsten-light films" and "flash films, each of which gives a badly off-color effect if used under the wrong light-source.

In taking pictures of the nebulae in space, should one use "daylight" film, or "flash" or "tungsten-light" film?

There are color-correcting filters so that you can use "tungsten" type film in daylight, or vice versa of course—but there is nothing that will make a picture half illuminated by sunlight and half by tungsten light

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

look right. And "daylight" fluorescent lights yield an over-all greenish cast for "daylight" films.

The nebulae in space represent very varied types of light-sources, and usually any one galactic nebula—i.e., a nebula *within* this galaxy, as distinct from an external galaxy—will be illuminated by more than one source.

External galaxies are, of course, masses of stars and dust; their glow is largely the direct light streaming from the stars composing them; essentially, that's simply hot-body-incandescence.

Among the galactic nebulae, however, there are some that are largely simply vast clouds of dust-particles, reflecting starlight. It would, perhaps, be appropriate to say that Saturn's rings are a sort of "ring nebula" of this sort, made up of dust-sized particles shining by reflected light from the Sun. A comet shines partly by a similar mechanism.

But there are, also, such things as clouds of helium and hydrogen gas in space, with very little dust present, which shine brilliantly by reason of fluorescence; a giant, super-hot star radiating immense floods of ultraviolet light and soft X rays excites the atoms of hydrogen and helium in space to emit fluorescent radiation . . . and not just in what one would normally think of as "in its immediate vicinity"; some of the super-hot type-O and early type-B stars can ionize every atom of hydrogen in space for one hundred *light-years* around!

Orion . . . next to the Big Dipper, the most readily recognized of all constellations in the Northern winter skies. The three brilliant second-magnitude stars of the Belt above, and the three Sword Stars hanging down to the left. The Great Nebula in Orion surrounds the middle Sword Star, giving it a slightly fuzzy appearance even to the naked eye.

This shot, incidentally, was made with a 105mm F 2.5 Nikkor lens, and a standard Nikon F 35mm camera, exposed for only four seconds, on a standard tripod. With modern high-speed film and lenses, photographs of the constellations can be made without special equipment of any kind.

Photo: J. W. Campbell

A while back, we discussed here the electroluminous lamp as one type of light source not found in nature; there's one type found in nature that Man isn't apt to want to use—ever! When charged particles are deflected from straight-line movement by a magnetic field, they radiate electromagnetic energy. The wave length of the radiation depends on the sharpness of the curvature of path, and hence on speed vs. strength of magnetic field. It's known as "synchrotron radiation," because men first ran into the phenomenon in practice when dealing with the extremely high-energy charged particles in a synchrotron, which were being forced into circular orbits by the synchrotron magnet.

The Crab Nebula seems to be the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

left-over debris of the explosion of a super-nova seen on Earth in 1054 A.D. The light coming from it shows the characteristics of synchrotron radiation—the debris blasted off somewhat over nine hundred years ago at some five thousand miles per second is still traveling—and there are evidently some huge magnetic fields at work.

So . . . in space, there are direct incandescent light sources, the stars, indirect incandescent-reflection sources, the reflective particles, fluorescent sources, and synchrotron-type light sources.

Now what type of color film do we use, huh?

Well, the Sun is a star, and since "daylight" film is balanced for sunlight, that would be right for starlight illumination, maybe?

No dice! The Sun is a type G5 star (I can remember way back to when it used to be a GO; it seems to have changed vastly during my lifetime . . . or the astrophysicists have changed their rating system) which means that it has a surface temperature of about 5,500°K. This is roughly the temperature of a high-current carbon-arc light source—which usually appears definitely more blue than white. The answer is, of course, that our atmosphere filters the sun's light, and disperses the blue light, thus making the sky look blue, and the sun quite yellowish.

But a type BO star will run a surface temperature of 30,000 degrees or so—and the rare super-giant type O stars run 50,000 to 100,000 degrees or so. While the super-nova remnant in the middle of the Crab Nebula—the ten per cent or so of the original star-core that was left after the explosion—is still cooling off. Before the explosion, it was the thermonuclear core generator of a supergiant star; during the explosion, it was at the exact center of the quite inconceivable catastrophe of an exploding star, and wasn't blown away largely because there was no direction that wasn't already full of pure violence. It's had only nine hundred years or so to cool off and its temperature still appears to be somewhere around 500,000°K.

The blue effect produced by daylight on tungsten-type film is due to the difference between the 5,500°K of sunlight vs. the 3,200°K of photoflood bulb filaments.

What color do you think a "daylight" film would yield if it were exposed under the light of a 50,000° type O star? Or to the light of that super-nova core in the Crab Nebula?

Or, for that matter, the effect of a 3,000°K supergiant M star such as Betelgeuse or Antares?

These problems make the job of taking color pictures of space not-so-simple. But there's another angle. . . .

Within pretty wide limits, photographic emulsions follow the "reciprocity law" quite well, which is of immense help to the amateur photographer. The reciprocity law simply holds that the film reacts in a manner directly proportional to the product

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

of light-intensity times time-of-exposure—that $I \times T = K$. Twice the light-intensity, for half the time, gives the same effect on the film.

Within a factor of nearly 50,000 to 1, that works very well for black-and-white films. Color films however begin to show some imbalance at exposure times much less than 1/1000th of a second, or longer than about ten seconds. If you go to extremely long exposures—many minutes—or extremely short exposures—microseconds—color films no longer give the expected color balance, because the color films are, necessarily, made up of three different types of emulsion, one blue-sensitive, one yellow-sensitive, and one red-sensitive. The three emulsions all depart from the reciprocity law for either extreme of exposure—but they depart in different degrees, and at different rates. This can make green come out anything from orange to purple.

When you're making exposures of nebulae that call for ten-hour exposures, the reciprocity law is a long-gone memory of something that used to be. About as applicable as the laws of the Medes and the Persians concerning a New York traffic jam.

To get these color pictures of nebulae, the Palomar Observatory photographic specialists, working with the Ansco specialists, had to develop some very fancy new techniques. At first, they tried taking the shots with the film in the normal manner, then making color corrections by using color-filters in copying the original transparencies. That would have been advantageous because it would have put the light-absorbing filter step in the copying machine, where light is cheap and plentiful, instead of in the negative-making stage, where light is excessively hard to gather!

Unfortunately, it didn't work; the original exposures had to be filtered.

What space would look like to human eyes—what the Giant Nebula in Orion—would look like to human eyes in some interstellar cruiser somewhere in those areas of space, no man can possibly say. Almost certainly, they would *not* look like the shots the Palomar Observatory obtained.

No human eye, even when aided by the immense light-gathering power of the 200-inch reflector, can see color in the nebulae; the light-level is too low. Human color vision works in a some still undetermined manner,* but that manner is not as sensitive by a large factor as our black-and-white vision. Anyone can see the Orion nebula readily in a small telescope—a 6″ reflector makes it clearly and brilliantly visible. But not even the 200″ Palomar telescope can make colors visible.

That giant telescope, using the extremely sensitive High Speed Ans-

* The Land color-vision experiments have been continued; we definitely don't see color by any of the mechanisms proposed earlier, but the mechanism we *do* use is still undetermined. The latest where-do-we-go-from-here results have been obtained at M.I.T., where some experiments indicate that a single light source can be made to appear any desired color by simply varying the rate of flashing it!

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

cochrome color film, plus many hours exposure, did get color results.

Necessarily, these are, to a considerable extent, artifacts of the technology rather than representations of natural color—but so is human color vision! Remember that there is no such thing as "purple light"; purple is the color-vision response a human being experiences when his eye is exposed to mixed red and blue light. Strictly an artifact of the biological technology, not a fact of nature!

Since photographic emulsions are enormously sensitive to ultraviolet light, color films will reproduce the illumination of a "black-light" ultraviolet source very brilliantly—as being bright blue! The emulsion layer sensitive to blue light is also sensitive to violet and near ultraviolet; in processing the color film, it is arbitrarily assumed that that layer reacted only to blue, and the emulsion layer is dyed blue. The net result is that, in color film, blue-green, blue, blue-violet, violet, near ultraviolet, and even soft X rays will be rendered as pure blue! A pure violet spectrum line, on any modern color film, will be rendered pure blue.

The value of the Palomar color photographs is very real, however—since no human eye can ever see what the color film was reacting to (not from Earth, which is where the film saw it!), it is pointless to say the "color isn't true" or anything of the sort. It is, in effect, an accurate map of a series of isophotic lines—a sort of photometric topological map—rendered readily perceivable by being colored. On a standard map of the United States, New Jersey is pink, and New York is green, Pennsylvania buff, and . . . and while it has nothing whatever to do with the actual colors in nature, it makes reading the map very much simpler.

In some of these color photographs, sharply detailed phenomena show up which would have been detectable, otherwise, only by the most elaborate and painstaking point-by-point photometry, determining the red-to-blue ratios of various areas with the greatest care. When one vast mass of dilute gas and dust in space—a mass perhaps ten million cubic light-years in volume—collides with another enormous volume, we have two masses moving many kilometers a second in direct head-on collision. Each of those masses may total a thousand—or ten thousand—times the mass of our Sun. Yet to the human eye, almost nothing will be visible! A collision in space of a thousand Suns . . . and nothing apparent!

Such color photographs as those Palomar has taken make some of the phenomena of that nature visible; the collision front, extending across 1,000 light-years, perhaps, will be a vast shock-wave, blazing—in a very dilute way!—with the radiation of dust and gas particles colliding at interstellar speeds. On the films, there will be a huge excess of ultraviolet, violet and blue over the red end of the spectrum in that area. The result will be:

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

a thin shock-front mapped in lacey detail of delicate blues and violets—something that would be almost impossible to detect by any of the older techniques of astrophotography or astrophotometry.

In running the Palomar photograph, Analog is stuck by a simple economic fact; color plates are too rich for our blood! The color plates for a one-page illustration cost us about $600; I would, naturally, like to run the entire article section in full color, to present all these nebular photographs that Palomar has taken, and made available.

It's economically impossible, of course.

However . . . for those that want them, full color reproductions of the entire series of Palomar color transparencies are available from the California Institute of Technology.

Orders for the shots are placed with the California Institute of Technology Bookstore, 1201 East California Blvd., Pasadena, Calif. They offer two sets of 35mm slides, S-19 through S-24, and S-25 through S-30; each set is $2.75, plus 75¢ per order for packaging and mailing.

The photographs are also available as Type C prints, or as display transparencies in sizes up to 20 x 24 inches —at $48 a copy, however!

Black and whites in 35mm slides, transparencies and prints are also available. Anyone seriously interested in astronomy should at least get the catalogue of black-and-white and color shots.

The Editor

The Analytical Laboratory

May 1962

PLACE	STORY	AUTHOR	POINTS
1.	Anything You Can Do (Pt. 1),	Darrell T. Langart	2.28
2.	. . . Nor Iron Bars,	Jonathan Blake MacKenzie	2.31
3.	Look Before You Leap,	Don Westlake	2.63
4.	The Next Logical Step,	Ben Bova	3.38
5.	Sight Gag,	Larry M. Harris	4.15

The Editor.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Border, Breed nor Birth

Conclusion. The true idealist is not permanently or immovably sold on any idea — but only on ideals. That makes him "disloyal," "untrustworthy," or any other term you like for "he had an open mind!"

by Mack Reynolds

Illustrated by Schoenherr

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

El Hassan, would-be tyrant of all North Africa, was on the run.

Arrayed against him and his dream was the combined power of the world in the form of the Reunited Nations, and such individual powers as the United States of the Americas, the Soviet Complex, the British Commonwealth, Common Europe, and the Arab Union. His followers at this point included only ISOBEL CUNNINGHAM, CLIFFORD JACKSON, JACOB ARMSTRONG, formerly of the Africa for Africans Association, and ELMER ALLEN, KENNETH BALLALOU and BEY-AG-AKHAMOUK, former members of a field team of the Sahara Division of the African Development Project of the Reunited Nations.

The group's immediate survival depends upon getting into the Great Erg of the Sahara where they can hide until El Hassan's message has been spread. Traveling in solar-powered, air cushion lorries, they are attacked by unidentified aircraft.

It all began when HOMER CRAWFORD, American sociologist head of a Reunited Nations field team expediting the development of Africa, was summoned by SVEN ZETTERBERG, his superior, and given the assignment of finding the mysterious El Hassan about whom rumors have been spreading throughout North Africa. El Hassan teaches that the whole area must be united, old tribal institutions must go, education must spread, and modernization must be accelerated to bring Africa to the level of the "have-continents."

Zetterberg, realizing that the individual members of the Reunited Nations each have their own irons in the fire and that there is a danger that conflict between them on the African domination issue might spark an international war, has wondered if the mysterious El Hassan might not be the force for the Reunited Nations to back.

But Homer Crawford tells him there is no El Hassan. That the desert hero is a product of his team which invented the mystery man to give their ideas prestige. Other field workers had taken up the habit of ascribing their arguments to El Hassan and now his message was sweeping the area from Egypt to Mauretania. But, Crawford, informs him, urged by his fellow field workers, Homer Crawford has decided to become *El Hassan and take the responsibility of becoming the hero-symbol these primitives require at their stage of ethnic development.*

Shocked at what seems pure opportunism, Zetterberg forbids Crawford to take the step, and then, when his commands are ignored, puts the full efforts of Reunited Nations behind stopping Crawford and his followers.

But Crawford and his group head for the Great Erg after sending the more elderly Jake Armstrong to Geneva and New York to be Foreign Minister and Plenipotentiary Extraordinary from El Hassan to the outside world.

Before they get out of Dakar, they are stopped at gun point by FRED-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

RIC OSTRANDER of the C.I.A. of the United States of the Americas. Ostrander attempts to arrest them after pointing out that, with the exception of Elmer Allen, a Jamaican, they are Americans and in danger of losing their citizenship. He says the State Department is opposed to El Hassan since some of his followers are suspected of being fellow travelers of the Soviet Complex. However, they overwhelm the C.I.A. man, steal his car and make good their escape.

In Tangier, a man known in Party circles as Anton meets KIRILL MENZHINSKY, agent superior of the Chrezvychainaya Komissiya *for North Africa, and is informed of the El Hassan plan. The Russian points out that North Africa is at present too primitive to be soil for communist seed and that El Hassan's efforts are desirable for the present. In twenty years, perhaps, things will have progressed to the point where the ultimate world program of the Soviet Complex can be introduced.*

Meanwhile, however, they wish to keep close watch on this El Hassan, and, if possible swing him to the long view of the communists. Anton is to join El Hassan, attempt to work his way up in the organization, and even become the friend of the African leader.

Menzhinsky also tells Anton that his friend Abe Baker was probably killed by Crawford and that Isobel Cunningham, once a Party member, has defected from the communists.

Back in Dakar, Fredric Ostrander is put on the carpet by his immediate superior. He acted too precipitately in attempting to arrest Crawford and his people.

Although the State Department is not of the opinion that El Hassan will realize his dream, Fredric Ostrander is assigned to find him and to keep in close contact, reporting all developments. If El Hassan does meet with success, Ostrander is to bring as much pressure as possible to bear on the Americans, reminding them of their heritage and swinging them to the viewpoints of the West.

REX DONALDSON, middle-aged citizen of the British Bahamas and now a field man for the African Department section of the British Commonwealth working on expediting native development, receives a radio call from Sir Winton Brett-Homes, in London.

Sir Winton tells him of El Hassan and orders Donaldson to seek him out and use all measures to oppose him. The interests of Her Majesty's government do not coincide with El Hassan's attempt.

Donaldson, who was one of the first to urge Homer Crawford to assume the role of El Hassan, resigns from his position and tells Sir Winton that he is going to recruit a few colleagues and then join El Hassan in the desert.

Back in the Great Erg, Crawford and his followers hear on the radio that in the name of combating El Hassan, the Arab Union has sent

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

crack units of the Arab Legion into the Sahara and have seized Tamanrasset. Obviously, the Arab Union is using this excuse to realize its dream of a Pan-Islamic empire. The Reunited Nations has been thrown into its usual confused, ineffective uproar.

Crawford realizes that this challenge must be met or the El Hassan movement will die before ever having been born. He sends Bey to Teda country to raise a column, Elmer Allen north to the Chaambra to rouse the tribesmen to the El Hassan banner; and Kenny Ballalou he sends west to organize the Nemadi. All are to rendezvous before Tamanrasset in two weeks to recapture the town.

Crawford, Isobel and Cliff Jackson continue on into the Ahaggar to swing the fierce Tuareg to the support of El Hassan.

In the camp of the Amenokal of the Tuareg confederation, Crawford meets the clan chiefs and tells them of the El Hassan dream. He explains the position the once warrior-bedouin Tuareg will assume in the new world of a united North Africa, and over the opposition of some of the elders who resist changing the old ways, gains their support.

GUEMAMA, war chief of the Kel Rela clan, is attracted to the El Hassan dream and is sent off with his scouts to raise the Tuareg for the campaign against the Arab Legion.

V

■ Guémama, nephew of Melchizedek the Amenokal of the Ahaggar Tuareg confederation and fighting chief of the Kel Rela clan of the Kel Rela tribe, brought his Hejin racing camel to an abrupt halt with a smack of his mish'ab camel stick. He barked, *"Adar-ya-yan,"* in command to bring it to its knees, and slid to the ground before his mount had groaned its rocking way to the sand.

The Tarqui was jubilant. His dark eyes sparked above his teguelmoust veil and he presented himself before Homer Crawford with the elan of a Napoleonic cavalryman before his emperor. Were red leather fil fil boots capable of producing a clicking of heels, that sound would have rung.

Crawford said with dignity, "Aselamu, Aleikum, Guémama. Greeting to you."

"Salaam Aleikum," the tribesman got out breathlessly. "Your message spreads, O El Hassan. My men ride to eastward and westward and never a tent from here to Silet, from In Guezzam to Timissao but knows that El Hassan calls. The Taitoq and the Tégéhé Mellet ride!"

Homer Crawford was standing before the hovercraft. The Amenokal's tribesmen had set up two large goat leather tents for his use and the three Americans had largely withdrawn to their shelter. Crawford was aware of the dangers of familiarity.

Cliff Jackson, who as usual had been monitoring the radio, came from the hover-lorry and growled, "What's he saying?"

"The tribesmen are gathering as per instructions," Homer said in English.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Jackson grunted, somewhat self-conscious of the Targui's admiring gaze. The Tuareg is the handsomest physical specimen of North Africa, often going to six foot of wiry manhood, but there was nothing in all the Sahara to rival the build of Homer Crawford, not to speak of the giant Cliff Jackson.

Crawford turned back to the Tuareg chieftain. "You please me well, O Guémama. Know that I have been in conference with my viziers on the Roumi device which enables one to speak great distances and that we have decided that you are to head all the fighting clans of the Ahaggar, and that you will ride at the left hand of El Hassan, as shield on shoulder rides."

The Targui, overwhelmed, made adequate pledges of fidelity, flowering words of thanks, and then hurried off to inform his fellow tribesmen of his appointment.

Isobel emerged from her tent. She looked at Homer obliquely, the sides of her mouth turning down. "As shield on shoulder rides," she translated from the Tamaheq Berber tongue into English. "Hm-m-m." She cast her eyes upward in memory. "You aren't plagiarizing Kipling, are you?"

Crawford grinned at her. "These people like a well turned phrase."

"And who could turn them better than Rudyard?" she said. Her voice dropped the bantering tone. "What's this bit about making Guémama warchief of the Tuareg? Isn't he on the young and enthusiastic side?"

Cliff scowled. "You mean that youngster? Why he can't be more than in his early twenties."

Crawford was looking after the young Targui who was disappearing into his uncle's tent on the far side of the rapidly growing encampment.

"You mean the age of Napoleon in the Italian campaign, or Alexander at Issus?" he asked. Isobel began to respond to that, but he shook his head. "He's the Amenokal's nephew, and traditionally would probably get the position anyway. He's the most popular of the young tribesmen, and it's going to be they who do the fighting. Having the appointment come from El Hassan, and at this early point, will just bind him closer. Besides that, he's a natural born warrior. Typical. Enthusiastic, bold, brave and with the military mind."

"What's a military mind?" Cliff said.

"He can take off his shirt without unbuttoning his collar," Homer told him.

"Very funny," Cliff grumbled.

Isobel turned to the big Californian. "What's on the radio, Cliff?"

"Let's go get a cup of coffee," he said. "All hellzapoppin."

They went into the larger of the two Tuareg tents, and Isobel poured water from a girba into the coffee pot which she placed on a heat unit, flicking its switch. She said sarcastically, from the side of her mouth, "A message, O El Hassan, from the Department of Logistics, subdepart-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ment Commissary of Headquarters of the Commander in Chief. Unless you get around to capturing some supplies in the near future, your food is going to be prepared over a camel dung fire. This heat unit is fading out on me."

"Don't bother me with trivialities," Homer told her. "I've got *big* things on my mind."

She looked at him suspiciously. "Hm-m-m. Such as what?"

"Such as whether to put my face on the postage stamps profile or full."

She said, under her breath, "I shoulda known. Already, delusions of grandeur."

"Holy Mackerel," Cliff protested. "Aren't we ever serious around this place? You two will wind up gagging with the firing squad."

Crawford chuckled softly but let his face go serious. "Sorry, Cliff. What's on your mind?"

Cliff said impatiently, "From the radio reports, the Arab Union is consolidating its position. El Hassan is being discredited by the minute. Your followers were in control for a time in Mopti and Bamako, but they're falling away because of lack of direction. The best way I can put reports together, the Reunited Nations is in complete confusion. Everybody accusing everybody of double-dealing."

Isobel said dryly, "Any other good news?"

Cliff said glumly, "Rumors, rumors, rumors. Half the marabouts in North Africa are proclaiming a jedah in support of the Pan-Islam program of the Arab Union. Listen, Homer, we've got to get the backing of the Moslem leaders."

Homer Crawford grunted. "We need Islam in this part of the world like we need a hole in the head. That's one of the things already wrong with North Africa."

"What's wrong with Islam? It was probably the most dynamic religion ever to sweep the world."

"*Was* is right," Crawford growled, now on one of his favorite peeve subjects. "The Moslem religion exploded out of Arabia with some new concepts that set the world in ferment from India to Southern France. For all practical purposes Islam *invented* science. Sure, the Greeks had logic and the Romans had engineering—without applying the Greek-style logic. But the Arabs amalgamated the two concepts to yield experimental science. They were able to take the intellectual products of a dozen cultures and wield them into one. For a hundred years or so it looked as though they had something."

When he hesitated for a moment, Isobel said, questioningly, "And . . ."

"And they couldn't get away from that Q'ran of theirs. They took it seriously. They started off in their big universities, such as those at Fez, being the greatest scientists and scholars the world had ever seen. But the fundamentalists won out, and in a couple of hundred years the only thing being taught at Fez was the Q'ran. To even suggest that all nec-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

essary information isn't contained therein, is enough to have you clobbered. Islam became the most reactionary force to suppress progress in the civilized world. In fact, by this period in world history, we don't even think of the Moslem world as particularly civilized."

Cliff said defensively, "The Bible doesn't encourage original thinking either. A fundamentalist . . ."

"Sure," Crawford interrupted. "Those elements who take the Bible the way Islam took the Q'ran wind up in the same rut. But *as a whole,* Europe was sparked enough by the original Islamic explosion that the Renaissance resulted, with what world results we all know. Be . . ."

There was a roar of confusion outside. A blasting of guns, a shrieking of *Ul-Ul-Ul-Allah Akbar!*

Crawford came to his feet unhappily. "Another contingent of Tuareg," he said. "I'll have to give them a quick welcoming to the colors speech."

The guns outside continued their booming.

"Confound it," he growled, "I wish I could break them of that habit of blasting away their ammunition. They'll have better targets before the week is out."

He pushed open the tent flap and, followed by Isobel and Cliff, emerged into the stretch of clearing between his tents and the hovercraft, and the growing Tuareg encampment. His diagnosis had been correct. A contingent of possibly two score Tuareg camelmen had come a-galloping up, shaking rifles above their heads in a small scale gymhana, or fantasia as the Moors called them.

"At least it's a larger group than usual," Cliff said from behind. "But at this rate, it'll still take a month for us to equal the Arab Legion in Tamanrasset." He added in disgust, "And look at this bunch of ragamuffins. Half of them are carrying muzzleloaders."

The booming muskets and the cracking rifles suddenly began to fall off in intensity and the camelmen and the hordes of Tuareg women and naked children who had swarmed from the tents to greet them were falling silent. Here and there a hand pointed upward.

Homer, Cliff and Isobel swung their own eyes up to the sky in dreaded anticipation. The hoverlorry was camouflaged to blend in with the sands and rock outcroppings of this area, but it was possible that an aircraft might have determined that this was El Hassan's base, possibly through some act of a traitor, in which case . . .

They found the spot in the sky that the tribesmen were pointing out. It seemed to move slowly for a military craft, but for that matter it might be a heliojet and considerably more dangerous, so far as they being spotted was concerned, than a fast moving fighter.

Guémama, was barking to his men to take cover. Two days before Crawford had checked out several of the more bright-eyed on the flac rifle

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

and now three of them ran to where it was set up at a high point.

But hardly had the confused milling got under way than it fell off again. Movement stopped, and the Tuareg faced the approaching dot in the sky.

"Djinn . . . !"

"Afrit . . . !"

Cliff had darted back into the tent, now he emerged with binoculars.

"What the devil is it?" Crawford snapped. Desert trained eyes were evidently considerably more effective than his own. He couldn't see what the tribesmen were gaping at.

"It's the smallest heliohopper *I've* ever seen," Cliff snorted. "It's so small practically all you can see are the rotors and the passenger. He doesn't even look as though he's got a seat."

Guémama came hurrying up, his eyes wide beneath his teguelmoust. "El Hassan! A witchman . . . come out of the sky!"

Homer said evenly, "It is nothing. Only post men ready to obey my commands."

Guémama hesitated as though to waver out another protest, but then spun and hurried off—military-like, glad to have an order to obey to keep his mind from the impossible.

"I'm beginning to have a sneaking suspicion—" Crawford began without finishing. "Come on Isobel, Cliff. We're going to have to make the most of this."

Rex Donaldson, ex-field man for the African Department of the British Commonwealth, dropped the lift lever of his heliohopper and settled to the ground immediately before Homer Crawford who stood there flanked by Isobel Cunningham and Cliff Jackson. Further back and in the form of a crescent were possibly two or three hundred Tuareg of all ages and both sexes.

Donaldson, in the garb of a Dogan juju man consisting of little more than a wisp of cloth about his loins, played it straight, not knowing the setup. On the face of it, he had just flown out of the sky *personally*. The size of his equipment so small as to be all but meaningless.

He unstrapped himself from the thin, bicyclelike seat, and, expressionlessly, folded the rotors of his tiny craft back over themselves and the engine, collapsed the whole thing into a manageable packet of some seventy-five pounds, the seat now becoming a handle, and then turned and faced Crawford.

Donaldson screwed his wizened face into an expression of respect and made a motion of obeisance. Then he waited.

Isobel said, "El Hassan bids you speak."

That was the tip-off, then. Crawford had already revealed himself to these people as El Hassan. Very well.

Donaldson spoke in Arabic, not knowing the Tamaheq tongue. "Aselamu, Aleikum, El Hassan. I come to obey your wishes."

A sigh had gone through the Tua-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

reg. "Aiiiii." *Wallahi, even the djinn obeyed El Hassan!*

With dignity, Homer Crawford said, "Keif halak, all in my house is yours."

Rex Donaldson inclined his small bent body again, in respect.

Crawford said in English, "Let's not carry this *too* far. Come on into the tent."

Ignoring the Tuareg, who still gaped but held their distance, the four English-speaking Negroes headed for the larger of the two tents that had been set up for El Hassan.

As they passed Guémama who stood slightly aside from the other Tuareg with his uncle Melchizedek, the Amenokal, Crawford nodded and said, speaking to them both. "A messenger from my people to the south. Continue with your newly arrived warriors, O Guémama."

Cliff Jackson had picked up the folded heliohopper and was now carrying it easily.

Guémama looked at the device and blinked.

Crawford refrained from laughing at his commander of irregulars. "It is not a *kambu* device. My people deal not in magic. It is but one of the many of the things the new ways bring. One day, Guémama," Homer's face remained expressionless, "perhaps you will fly thus."

The teguelmoust hid the other's blanch.

In the tent, Homer turned to the Bahaman, motioned to what seating arrangements were available.

Isobel said, "I'll get some coffee."

Cliff blurted, "Holy Mackerel, if Donaldson, here, can drop in on us out of a clear sky, what keeps anybody else from doing it? Somebody with a couple of neopalm bombs in the way of calling cards."

The dried up little man grimaced in his equivalent of a grin and said, "Hold it, you chaps. I want to notify the others."

"The others? What others?" Crawford said.

Donaldson ignored him for a moment, unslung the small bag he carried over one shoulder and dipped into it for a tiny, two-way radio. He pressed the buzzer button, then held it up to his mouth. "Jack, Jimmy, Dave. Here we are. Took donkey's years, but I found them. You chaps zero-in here." He left the device on and set it to one side, then yawned and settled himself to the rug-covered ground, crosslegged, Dogon style.

Homer Crawford, even as he sat down himself on a footlocker, in lieu of a chair, rapped, "How did you find us? Who did you just radio? Where'd you come from?"

"I say, hold it," Donaldson chuckled sourly. "First of all, I've come to join up. I thought as far back as that time we co-operated in quelling the riots in Mopti that you ought to do this—proclaim yourself El Hassan. When I heard you'd taken the step, I came to join up."

"Oh, great," Cliff said. "What took you so long? We hardly get here, to our ultra-secret hideout, than here you are."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Isobel came with the coffee and handed it around, silently. Then she, too, settled to the rug which covered the sand of the floor.

Rex Donaldson turned to Cliff and there was a wrinkle of amusement in the older man's eyes. "I took so long, because I needed the time to recruit a few other chaps I knew would stand with us."

Crawford rapped, "That's who you just radioed?"

"Of course, old boy. I'd hardly bring the opposition down on us, would I?"

"Where are they?"

"In a couple of hovercraft, similar to your own, possibly twenty kilometers to the southwest."

"You still haven't told us how you found us?"

The little man shrugged. "After tendering my resignation to Sir Winton, I considered the possibilities, which narrowed down very quickly when I heard the Arab Legion had taken Tamanrasset."

"Why?" Isobel said.

Donaldson shot a glance at her. "Because, my dear, unless El Hassan is able to retake Tamanrasset, his movement has come a cropper." He turned his eyes back to Crawford, who was nervously running his hand through his hair. "I knew you had done considerable work in this area, so your whereabouts became obvious seeing that Tamanrasset is in Tuareg country. It was simply a matter of finding what Tuareg encampment was your base, and since your quickest manner of gathering support would be to swing the Amenokal to your banner, I headed for his usual encampment this time of year."

Cliff looked at Homer Crawford. "If Rex found us so easily, so will anybody else."

Isobel put in. "Not necessarily. Mr. Donaldson has information that most of El Hassan's opponents wouldn't."

Homer came to his feet unhappily and began pacing. "No, Isobel. Ostrander, for instance, has all the dope Rex has and is just as capable of working it through to a conclusion. It takes no great insight to realize El Hassan has to either put up or shut up when it comes to Tamanrasset. That's possibly why some of the other elements interested in North Africa have so far refrained from action against the Arab Union. They want to see what El Hassan is going to do—find out just what he has on the ball."

Rex Donaldson looked at him interestedly, "And? What are your plans?"

Homer Crawford's face worked. "My plans right at present are to stay alive, and you finding me so easily isn't heartening. However, it brings to mind some other problems which need solving, too."

The rest of them fell silent, looking at him. His usual casual humor had dropped away, and his personality gripped them.

He stopped his pacing, and frowned down at them.

"El Hassan is going to have to

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

remain on the move. Always. There can be no capital city, no definite base, and it's going to be a poor idea to sleep twice in the same place." He shook his head emphatically as though to deny rebuttal, which they hadn't actually made. "El Hassan's enemies mustn't know his location within twenty miles."

"Twenty miles!" Cliff blurted.

Crawford stared at him, but unseeingly. "Yes. At least half a dozen of our opponents possess nuclear weapons."

Donaldson demured, sourly. "A nuclear weapon hasn't been exploded for donkey's years and—"

"Of course not," Homer snapped. "Nor would anyone dare, anywhere else except in the wastes of the Sahara. A nuclear explosion in the Ahaggar would not go undetected and a controversy might go up in the Reunited Nations. But who could prove who had done it? And who, actually, would care if in the explosion a common foe of all was eliminated? But let the Arab Union, or possibly the Soviet Complex, or even others, learn definitely where El Hassan is and a bomb could well devastate twenty square miles seeking him out." Crawford shook his head. "No, we've simply got to keep on the move."

Donaldson said, even as he nodded agreement, "And what other problems were you talking about?"

"Oh?" Homer said. "Well, keeping on the move will serve to add mystery to the El Hassan legend. It isn't good for this Tuareg encampment, for instance, to see too much of El Hassan. A leader claiming domination of half a continent looks small potatoes in a desert camp of a few score tents. On the move, showing up here, there, the other place, for only a day or two at a time, is another proposition."

He thought a moment. "Remember DeGaulle?"

"How could we forget?" Rex Donaldson said wryly.

"He had one angle that couldn't be more correct. He said a leader had to keep remote, ever mysterious. He can't afford to have real intimates. Napoleon, Hitler, Stalin. None of them had a real friend to their name. The nearest to friends that Adolph the Aryan ever had, his old comrades of the beerhall days, such as Rhoem, he butchered in the blood purge. And Stalin? He managed to do away with every Old Bolshevik he knew in the days before the Party came to power."

Cliff was staring at him. "Hey," he said. "The one other thing one of these mystical leader types needs is a belief in his own destiny. To the point of clobbering all his intimates if he thinks they stand in his way."

Homer broke into a sudden short laugh. "Any qualms, Cliff?"

Cliff growled, "I don't know. This dream of yours is growing. Where it might end—I don't know."

As they were talking the cries of *Ul-Ul-Ul-Allah Akbar!* had broken out again.

"Heavens to Betsy," Isobel said. "Another contingent of camelmen?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

But this time the newcomers were three in number and rode in air cushion hover-lorries, the twins of that used by Homer Crawford.

Rex Donaldson brought them up to the tent, saying, "I didn't think you chaps were quite so close."

Homer, Cliff and Isobel faced the new recruits. The three were dressed in khaki bushshirts, shorts and heavy walking shoes—British style. Two were so obviously relatives that they could have been twins except for an age discrepancy of two or three years. They were smaller in stature than the Americans present, almost chunky, but their faces held education and cultivation. The third was slight of build, almost as wiry as Rex Donaldson, and seemed ever at ease.

The small, bent Bahaman made introductions. "Gentlemen, let me present El Hassan—Homer Crawford to you—formerly of the Reunited Nations African Development Project, formerly of the United States of the Americas." His face twisted in his sour grimace of a grin. "Now running for the office of tyrant of North Africa.

"And these are two of his original and most trusted adherents, Isobel Cunningham and Cliff Jackson." Donaldson turned to the newcomers. "John and James Peters—that's Jack and Jimmy, of course—recently colleagues of mine with the African Department of the Commonwealth, working largely in the Nigeria area."

Homer shook hands, grinning. "You're a long way from home."

"Farther than that," the one labeled Jack said without a smile changing the seriousness of his face. "We're originally from Trinidad."

Donaldson said, "And this is David Moroka, late of South Africa."

The wiry South African said easily, "Not so very late. In fact, I haven't seen Jo-burg since I was a boy."

He was shaking hands with Isobel now. "Jo-burg?" she said.

"Johannesburg," he translated. "I got out by the skin of my teeth during the troubles in the 1950s."

"You sound like an American," Cliff said when it was his turn to shake.

"Educated in the States," Moroka said. "Best thing that ever happened to me was to be kicked out of the land of my birth."

Homer made a sweeping gesture at the floor and the few articles of furniture the tent contained that could be improvised as chairs. "I'm surprised you're up here instead of in your own neck of the woods," he said to the South African.

Moroka shrugged. "I was considering heading south when I ran into Jimmy and Jack, here. They'd already got the word on the El Hassan movement from Rex. Their arguments made sense to me."

Eyes went to the brothers from Trinidad and Jack Peters took over the position of spokesman. He said, seriously, as though trying to convince the others, "North Africa is the starting point, the beginning. Given El Hassan's success in uniting North Africa, the central areas and later

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

even the south will fall into line. Perhaps one day there will be a union of *all* Africa."

"Or at least a strong confederation," Jimmy Peters added.

Homer nodded thoughtfully. "Perhaps. But we can't look that far forward now." He looked from one of the newcomers to the other. "I don't know to what extent you fellows understand what the rest of us have set out to accomplish but I suppose if you've been with Rex for the past week, you have a fairly clear idea."

"I believe so," Jack nodded, straight-faced.

Homer Crawford said slowly, "I don't want to give you the wrong idea. If you join up, you'll find it's no parade. Our chances were slim to begin, and we've had some setbacks. As you've probably heard, the Arab Union has stolen a march on us. And from what we can get on the radio, we have thus far to pick up a single adherent among the world powers."

"Powers?" Cliff snorted. "We haven't got a nation the size of Monaco on our side."

Moroka shot a quick glance at the big Californian.

Isobel caught it and laughed. "Cliff's a perpetual sourpuss," she said. "However, he's been in since the first."

The South African looked at her in turn. "We were hardly prepared to find a beautiful American girl in the Great Erg," he said.

Something about his voice caused her to flush. "We've all caught Homer's dream," she said, almost defensively.

David Moroka flung to his feet, viper fast, and dashed toward Homer Crawford, his hands extended.

Automatically, Cliff Jackson stuck forward a foot in an attempt to trip him—and missed.

The South African, moving with blurring speed, grasped the unsuspecting Crawford by the right hand and arm, swung with fantastic speed and sent the American sprawling to the far side of the tent.

Homer Crawford, old in rough and tumble, was already rolling out. Before the enertia of his fall had given way, his right hand, only a split second before in the grip of the other, was fumbling for the 9 mm Noiseless holstered at his belt.

Rex Donaldson, a small handgun magically in his hand, was standing, half crouched on his thin, bent legs. The two brothers from Trinidad hadn't moved, their eyes bugging.

Moroka was spinning with the momentum of the sudden attack he'd made on his new chief. Now there was a gun in his own hand and he was darting for the tent opening.

Cliff yelled indignantly, "Stop him!"

Isobel, on her feet by now, both hands to her mouth, was staring at the goatskin tent covering, against which, a moment earlier, Crawford had been gently leaning his back as he talked.

There was a vicious slash in the leather and even as she pointed, the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

razor-sharp arm dagger's blade disappeared. There was the sound of running feet outside the tent.

Homer Crawford had assimilated the situation before the rest. He, too, was darting for the tent entrance, only feet behind Moroka.

Donaldson followed, muttering bitterly under his breath, his face twisted more as though in distaste than in fighting anger.

Cliff, too, finally saw light and dashed after the others, leaving only Isobel and the Peters brothers. They heard the muffled coughing of a silenced gun, twice, thrice and then half a dozen times, blurting together in automatic fire.

Homer Crawford shuffled through the sand on an awkward run, rounding the tent, weapon in hand.

There was a native on the ground making final spasmatic muscular movements in his death throes, and not more than three feet from him, coolly, David Moroka sat, bracing his elbows on his knees and aiming, two-handed, as his gun emptied itself.

Crawford brought his own gun up, seeking the target, and clipping at the same time, "We want him alive—"

It was too late. Two hundred feet beyond, a running tribesman, long arm dagger still in hand, stumbled, ran another three or four feet with hesitant steps, and then collapsed.

Moroka said, "Too late, Crawford. He would have got away." The South African started to his feet, brushing sand from his khaki bush shorts.

The others were beginning to come up and from the Tuareg encampment a rush of Guémama's men started in their direction.

Crawford said unhappily, looking down at the dead native at their feet, "I hate to see unnecessary killing."

Moroka looked at him questioningly. "Unnecessary? Another split second and his knife would have been in your gizzard. What do you want to give him, another chance?"

Crawford said uncomfortably, "Thanks, Dave, anyway. That was quick thinking."

"Thank God," Donaldson said, coming up, his wrinkled face scowling unhappily, first at the dead man at their feet, and then at the one almost a hundred yards away. "Are these local men? Where were your bodyguards?"

Cliff Jackson skidded to a halt, after rounding the tent. He'd heard only the last words. "What bodyguards?" he said.

Moroka looked at Crawford accusingly. "El Hassan," he said. "Leader of all North Africa. And you haven't even got around to bodyguards? Do you fellows think you're playing children's games? Gentlemen, I assure you, the chips are down."

VI

El Hassan's Tuaregs were on the move. After half a century and more of relative peace the Apaches of the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Sahara, the Sons of Shaitan and the Forgotten of Allah were again disappearing into the ergs to emerge here, there, and ghostlike to disappear again. They faded in and faded away again, and even in their absence dominated all.

El Hassan was on the move, as all men by now knew, and he, who was not for the amalgamation of all North Africa, was judged against him. And who, in the Sahara, could afford to be against El Hassan when his Tuaregs were everywhere?

Refugees poured into Tamanrasset for the security of Arab Legion arms, or into In Salah and Reggan to the north, or Agades and Zinder to the south. Refugees who had already taken their stand with the Arab Union and Pan-Islam. Refugees who were men of property and would know more of this El Hassan before risking their wealth. Refugees who took no stand, but dreaded those who drank the milk of war, no matter the cause for which they fought. Refugees who fled simply because others fled, for terror is a most contagious disease.

Colonel Midan Ibrahim of the crack motorized units of the Arab Legion which occupied Tamanrasset, was fuming. His task was a double one. First, to hold Tamanrasset and its former French stronghold Fort Laperrine; second, to keep open his lines of communication with Ghadmès and Ghat, in Arab Union dominated Libya. To hold them until further steps were decided upon by his superiors in Cairo and the Near East—whatever these steps might be. Colonel Midan Ibrahim was too low in the Arab Union hierarchy to be in on such privy matters.

His original efforts, in pushing across the Sahara from Ghadmès and Ghat, had been no more than desert maneuvers. There had been no force other than nature's to say him nay. The Reunited Nations was an organization composed possibly of great powers, but in supposedly acting in unison they became a shrieking set of hair-tearing women; the whole being less than any of its individual parts. And El Hassan? No more than a rumor. In fact, an asset because this supposed mystery man of the desert, bent on uniting all North Africa under his domination, gave the Arab Union, its alibi for stepping in with Colonel Ibrahim's men.

Yes, the original efforts had been but a drill. But now his Arab Legion troopers were beginning to face reality. The supply trucks, coming down under convoy from Ghadmès, reported the water source at Ohanet destroyed. The major well would take a week or more to repair. Who had committed the sabotage? Some said the Tuareg, some said local followers of El Hassan, others, desert tribesmen resentful of *both* the Arab Union and El Hassan.

One of his routine patrols, feeling out toward Menet to the north, had suddenly dropped radio communication, almost in mid-sentence. A relieving patrol had thus far found nothing, the armored car's tracks covered over by the sands.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

And rumors, rumors, rumors, Colonel Midan Ibrahim, born of aristocratic Alexandrian blood, though trained to a sharp edge in Near Eastern warfare, was basically city bred. The gloss of desert training might take on him, but the bedouin life itself was not in his experience, and it was hard for him to trace the dividing line between possibility and fantasy.

Rumors, rumors, rumors. They seemed capable of sweeping from one end of the Sahara to the other in a matter of hours. Faster, it would seem than the information could be dispensed by radio. El Hassan was here. El Hassan was there. El Hassan was marching on Rabat, in Morocco; El Hassan had just signed a treaty with the Soviet Complex; El Hassan had been assassinated by a disgruntled follower. Or El Hassan was a renegade Christian; El Hassan was a Moselm of Sheriffian blood, a direct descendant of the Phrophet; El Hassan was a pagan come up from Dahomey and practiced ritual cannibalism; El Hassan was a Jew, a veteran of the Israel debacle.

But this Colonel Ibrahim knew—the Tuareg had gone over to the new movement en masse. Something there was in El Hassan and his dream that had appealed to the Forgotten of Allah. The Tuareg, for the first time since the French Camel Corps had broken their strength, were united—united and on the move.

The Tuareg were everywhere. In most sinister fashion—everywhere. And all were El Hassan's men.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Colonel Ibrahim fumed and wondered what kept his superiors from sending in additional columns, additional armored elements. And, above all, adequate air cover. Ha! Give the colonel sufficient aircraft and he'd begin snuffing out bedouin life like candles—and bring the Peace of Allah to the Ahaggar.

So Colonel Ibrahim fumed, demanded further orders from mum superiors, and put his legionnaires to work on bigger and better gun emplacements, trenches and pillboxes surrounding Fort Laperinne and Tamanrasset.

El Hassan's personal entourage numbered exactly twenty persons. Of these, five were his immediate English-speaking, Western-educated supporters, Cliff, Isobel and the new Jack and Jimmy Peters and Dave Moroka. Rex Donaldson had been sent south again to operate in Senegal and Mali, to take over direction of the rapidly spreading movement in such centers as Bamako and Mopti and later, if possible, in Dakar.

The other fifteen were carefully selected Tuareg, picked from among Guémama's tribesmen taking care to show no preference to any tribe or clan, and taking particular care to choose men who fought coolly, unexcitedly, and didn't froth at the mouth when in action; men who were slow to charge wildly into the enemy's guns—but slower still to retreat when the going was hot. El Hassan was prone to neither hero nor coward in his personal bodyguard.

They kept under movement. In Abelessa one day, almost in range of the mobile artillery of the Arab Legion; in Timassao the next, checking the wells that meant everything to a desert force; the following day as far south as the Tamesna region to rally the less warlike Irreguenaten, a half-breed Tuareg people largely held in scorn by those of the Ahaggar.

Homer Crawford was killing time whilst stirring up as much noise and dust as his handful of followers could manage. Killing time until Elmer Allen from the Chaambra country, Bey-ag-Akhamouk from the Teda, and Kenny Ballalou from the west could show up with their columns. He had no illusions of how things now stood. At best, he could hold together a thousand Tuareg fighting men. No more. The economics of desert life prevented him a larger force, unless he had the resources of the modern world at hand, and he didn't. Besides that, the Tuareg confederation could provide no larger number of fighting men and at the same time continue their desert economy.

He stood now with Isobel, Cliff and Dave Moroka in one of the western type tents which the Peters brothers had brought with them in their hover-lorries, and poured over the half-adequate maps which covered the area.

Dave Moroka traced with a finger. "If we could dominate these wells

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

running to Djanet, our Arab Union friends would have only their one line of supply going through Temassinine to Ghademès. That's a long haul, Homer."

Homer Crawford scowled thoughtfully. "That involves only four wells. If Ibrahim's legionnaires staked out only three armored vehicles at each water hole, they could hold them. Our camelmen could never take armor."

Moroka frowned, too. "We've got to start *some* sort of action, or the men will start dribbling away."

Cliff Jackson said, "Bey and Kenny and Elmer should be coming soon. I heard a radio item this morning about a big pro-El Hassan movement starting in the Sudan among the Teda."

Moroka said, "We need some sort of quick, spectacular victory. The bedouin can lose interest as quickly as they can get steamed up, and thus far we haven't given them anything but words—promises."

"You're right," Homer growled, "but there's nothing we can do right now but mark time. Irritate the Arabs a bit. Keep them from spreading out."

Isobel brought coffee, handing around the small Moroccan cups. She said, "Well, one thing is certain. We get supplies soon or start eating jerked goat and camel milk curds."

Moroka said in irritation, "It's not funny."

Isobel raised her eyebrows. "I didn't mean it to be. Have you ever been on a camel curd diet?"

"Yes, I have," Moroka said impatiently. He turned back to Homer Crawford. "How about waylaying an armored car or so, just in the way of giving the men something exciting to do?"

Crawford ran a hand back through his short hair. "Confound it, Dave, can you picture what a Recoilless-Brenn gun would do to a harka of our charging camelmen? We can't let these people be butchered."

"I wasn't thinking of wild charges," Moroka argued.

They had both turned away from Isobel, in their discussion. Now she looked at them, strangely. And especially at Homer Crawford. His brusqueness toward her didn't seem the old Homer.

There was a bustle from outside and a guardsman stuck his head in the tent entrance and reported in Tamaheq that a small camel patrol approached.

The four of them went out. Coming up were a dozen Tuareg and two motor vehicles.

Cliff said, "Something new."

Moroka said, "We can use the transport."

"Let's see who they are, before we start requisitioning their property," Homer said dryly.

The two desert trucks had hardly come to a halt before the camouflaged tents and hover-lorries of El Hassan's small encampment before a heavy-set, gray haired Negro, whose energy belied his weight, bounced down from the seat adja-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

cent to the driver's in the lead vehicle and stomped belligerently to the group before the tent.

"What is the meaning of this?" he snapped.

Homer Crawford looked at him. "I'm sure I don't know as yet, Dr. Smythe. Neither you nor these followers of mine have informed me as to what has transpired. Won't you enter my quarters here and we'll go into it under more comfortable conditions?" He glanced upward at the midday Saharan sun.

The other seemed taken aback at Crawford calling him by name. He squinted at the man who was seemingly his captor.

"Crawford!" he snapped. "Dr. Homer Crawford! See here, what is the meaning of this?"

Homer said, "Dr. Warren Harding Smythe, may I present Isobel Cunningham, Clifford Jackson and David Moroka, of my staff?"

"Huuump. I met Miss Cunningham and, I believe, Mr. Jackson at that ridiculous meeting in Timbuktu, a short time ago." The doctor peered over his glasses as Moroka.

The wiry South African nodded his head. "A pleasure, Doctor." He held open the tent entrance.

Smythe snorted again and stomped inside to escape the sun's glare.

In the shade of the tent's interior, Isobel clucked at him and hurried to get a drink of water from a moist water cooler. Homer Crawford motioned the other to a seat, and took one himself. "Now then, Dr. Smythe."

The indignant medic blurted, "Those confounded bandits out there—"

"Irregular camel cavalry," Crawford amended gently.

"They've kidnaped me and my staff. I demand that you intercede, if you have any influence with them."

"What were you doing?" Crawford was frowning at the other. Actually, he had no idea of the circumstances under which the probably overenthusiastic Tuareg troopers had rounded up the American medical man.

"Doing? You know perfectly well I represent the American Medical Relief. My team has been in the vicinity of Silet, working with the nomads. The country is rife with everything from rickets to syphilis! Eighty per cent of these people suffer from trachoma. My team—"

"Just a moment," Moroka said. "You mean out in those two trucks you have a complete American medical setup? Assistants and all?"

Smythe said stiffly, "I have two American nurses with me and four Algerians recruited in Oran. This sort of interference with my work is insufferable and—"

The South African was staring at Homer Crawford.

Cliff Jackson cleared his throat. "It seems as though El Hassan has just acquired a Department of Health."

"El Hassan?" Smythe stuttered. "What, what?"

Isobel said softly, "Dr. Smythe, surely you have heard of El Hassan."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Heard of him? I've heard of nothing else for the past month! Confounded ignorant barbarian. What this part of the world needs is *less* intertribal, interracial, international fighting, not more. The man's a raving lunatic and—"

Isobel said gently, "Doctor . . . may I introduce you to El Hassan?"

"What . . . what—?" For the briefest of moments, there was an element of timorness in the sputtering doctor's voice. Then suddenly he comprehended.

He pointed at Homer Crawford accusingly. "You're El Hassan!"

Homer nodded, seriously, "That's correct, Doctor."

The doctor's eyes went around the four of them. "You've done what you were driving at there at that meeting in Timbuktu. You're trying to unite these people in spite of themselves and then drag them, willy-nilly, into the twentieth century."

Homer still nodded.

Smythe shook an indignant finger at him. "I told you then, Crawford, and I tell you now. These natives are not suited for such sudden change. Already they are subject to mass neurosis because they cannot adjust to a world that changes too quickly."

"I wonder if that doesn't apply to the rest of us as well," Cliff said unhappily. "But the changes go on, if we like them or not. Can you think of any way to turn them off?"

The doctor snorted.

Homer Crawford said, "Dr. Smythe, the die is already cast. The question now becomes, will you join us?"

"Join you! Certainly not!"

Crawford said evenly, "Then I might suggest that, first, you will not be allowed to operate in my territory." He considered for a moment, grinning inwardly, but on the surface his expression serene. He added, "And second, that you will probably have difficulties procuring an exit visa from my domains."

"Exit visa! Are you jesting? See here, my good man, you realize I am a citizen of the United States of the Americas and—"

"A country," Homer yawned, "with which I have not as yet opened diplomatic relations, and hence has little representation in North Africa."

The doctor was bug-eying him. He began sputtering again. "This isn't funny. You're an American citizen yourself. And you, Miss Cunningham and—"

Isobel said sadly, "As a matter of fact, the last we heard, the State Department representative told us our passports were invalid."

Crawford leaned forward. "Look here, Doctor. You don't see eye to eye with us on matters socio-economic. However, as a medical man, I submit that joining my group . . . ah, that is, until you can secure an exit visa from my authorities . . . will give you an excellent opportunity to practice your science here in the Sahara under the wing of El Hassan. I'll assign a place for your

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

trucks and tents. Please consider the question and let me have your answer at your leisure. Meanwhile, we will prepare a desert feast suitable to the high esteem in which we hold you."

They looked after the doctor, as he left, and Moroka chuckled. However, Isobel was watching Homer Crawford quizzically.

She said finally, "We rode over him a little in the roughshod manner, didn't we?"

Homer Crawford growled uncomfortably, "Particularly when we finally have our showdown with the Arab Legion, a medic will be priceless."

Isobel said softly, "And the end justifies the means—"

Homer shot a quick, impatient look at her. "The good doctor and his people are in the Sahara to work with the Tuareg and the Teda and the rest of the bedouin. Beyond that, he has the same dream we have—of developing this continent of our racial background."

"But he doesn't believe in your methods, Homer, and we're forcing him to follow El Hassan's road in spite of his beliefs."

Moroka had been peering at the two of them narrowly. "You don't make omelets without breaking eggs," he said, his voice on the overbearing side.

She spun on him. "But the omelets don't turn out so well if some of the eggs you use are rotten."

The South African's voice turned gentle. "Miss Cunningham," he said, "working in the field, like this, can have its rugged side for a young and delicate woman—"

"*Delicate!*" she snapped. "I'll have you know—"

"Hey, everybody, hold it," Cliff injected. "What goes on?"

Dave Moroka shrugged. "It just seems to me that Isobel might do better back in Dakar, or in New York with your friend Jake Armstrong. Somewhere where her sensibilities wouldn't be so bruised, and where her assets"—his eyes went up and down her lithe body—"could be put to better use."

Isobel's sepia face had gone a shade or more lighter. She said, very flatly, "My assets, Mr. Moroka, are in my head."

Homer Crawford said disgustedly, "O.K., O.K., let's all knock it off." His eyes flicked back and forth between them, in definite command. "I don't want to hear any more in the way of personalities between you two."

Moroka shrugged again. "Yes, sir," he said without inflection.

Isobel turned away and took up some paperwork, without further words. She suppressed her feeling of seething indignation.

Homer Crawford, under his pressures, was changing. Possibly, she had told herself before, it was change for the better. The need was for a *strong* man, perhaps even a ruthless one.

The Homer Crawford she had

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

first known was an easier going man than he who had snapped an abrupt order to her a moment ago. The Homer she had first known requested things of his teammates and friends. El Hassan had learned to command.

The Homer she had first known could never have ridden, roughshod, over the basically gentle Dr. Smythe.

The Homer she had first known, when the El Hassan scheme was still aborning, had thought of himself as a member of a team. He was quick to ask advice of all, and quick to take it if it had validity. Now Homer, as El Hassan, was depending less and less upon the opinions of those surrounding him, more and more upon his own decisions which he seemed to sometimes reach purely through intuition.

The El Hassan dream was still upon her, but, womanlike, she wondered if she liked the would-be tyrant of all North Africa as well as she had once liked the easy-going American idealist, Homer Crawford.

Jack and Jimmy Peters, the brothers from Trinidad, entered, the former carrying a couple of books.

They'd evidently failed to note the raised voices and wore their customary serious expressions. Jack looked at Homer and said, *"Cu vi scias Esperanton?"*

Homer Crawford's eyebrows went up but he said, *"Jes, mi parolas Esperanto tre bona, mi pensas."*

"Bona," Jack said, *"Tre bona."*

"Jes, estas bele," his brother said.

Moroka was scowling back and forth from one of them to the other. "I thought I had a fairly good working knowledge of the world's more common languages," he said, "but that goes by me. It sounds like a cross between Italian and pig-Latin."

Homer said to the Peters brothers, "Let's drop Esperanto so that Dave, Isobel and Cliff can follow us. We can give it a whirl later, if you'd like, just for the practice."

Isobel said slowly, *"Mi parolas Esperanto, malgranda."* Then in English, "I took it for kicks while I was still in school. Kind of rusty now, though."

"Esperanto?" Cliff said. "You mean that gobblydygook so-called international language?"

Jack Peters looked at him, serious faced as always. "What is wrong with an international language, Mr. Jackson?"

Cliff was taken aback. "Search me. But it doesn't seem to have proved very practical. It didn't catch on."

"Well, more than you might think," Isobel told him. "There are probably hundreds of thousands of persons in one part of the world or another who can get along in Esperanto."

Moroka said impatiently, "What're a few hundred thousands of people in a world population like ours? Cliff's right. It never took hold."

Homer said, "All right, Jack and Jimmy. You boys evidently have something on your minds. Let everybody sit down and listen to it."

Even before they got thoroughly

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

settled, Jack Peters was launching into his pitch.

"We need an official language," he said. "The El Hassan movement has set as a goal the uniting of all North Africa. We might start here in the Sahara, but it's just a start. Ultimately, the idea is to reach from Morocco to Egypt and from the Mediterranean to . . . to where? The Congo?"

"Actually, we've never set exact *limits*," Homer said.

"Ultimately *all Africa*," Dave Moroka muttered softly. He ignored the manner in which Isobel contemplated him from the side of her eyes.

"All right," the West Indian said. "There are more than seven hundred major languages, not counting dialects, in Africa. Sooner or later, we need an official language, what is it going to be?"

"Why *one* official language? Why not several?" Cliff scowled. "Say Arabic, here in this area. Swahili on the East coast. And, say, Songhoi along the Niger, and Wolof, the Senegalese lingua franca, and—"

"You see," Peters interrupted. "Already you have half a dozen and you haven't even got out of this immediate vicinity as yet. Let me develop my point."

Homer Crawford was becoming interested. "Go on, Jack," he said.

Jack Peters pointed a finger at him. "To be the hero-symbol we have in mind, El Hassan is going to have to be able to communicate with *all* of his people. He's not going to be able to speak Arabic to, say, a Masai in Kenya. They hate the Arabs. He's not going to be able to speak Swahili to a Moroccan, they've never heard of the language. He can't speak Tamaheq to the Imraguen, they're scared to death of the Tuareg."

Homer said thoughtfully, "A common language would be fine. It'd solve a lot of problems. But it doesn't seem to be in the cards. Why not adopt as our official language the one in which the *most* of our people will be able to communicate? Say, Arabic?"

Jack was shaking his head seriously. "And antagonize all the Arab hating Bantu in Africa? It's no go, Homer."

"Well, then, say French—or English."

"English is the most international language in the world," Moroka said. But his face was thoughtful, as those of the others were becoming.

The West Indian was beginning to make his points now. "No, any of the European languages are out. The white man has been repudiated. Adopting English, French, Spanish, Portuguese or Dutch, as our official language would antagonize whole sections of the continent."

"Why Esperanto?" Cliff scowled. "Why not, say, Nov-Esperanto, or Ido, or Interlingua?"

Jimmy Peters put in a word now. "Actually, any one of them would possibly do, but we have a head start with Esperanto. Some years ago both Jack and I became avid

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Esperantists, being naïve enough in those days to think an international language would ultimately solve all man's problems. And both Homer and Isobel seem to have a working knowledge of the language."

Homer said, "So have the other members of my former Reunited Nations team. That's where those books you found came from. Elmer, Bey, Kenny . . . and Abe . . . and I used to play around with it when we were out in the desert, just to kill time. We also used it as sort of a secret language when we wanted to communicate and didn't know if those around us might understand some English."

"I still don't get the picture," Cliff argued. "If we picked the most common half a dozen languages in the territory we cover, then millions of these people wouldn't have to study a second language. But if you adapt Esperanto as an official language then *everybody* is going to have to learn something new. And that's not going to be easy for our ninety-five per cent illiterate followers."

Isobel said thoughtfully, "Well, it's a darn sight easier to learn Esperanto than any other language we decided to make official."

"Why?" Cliff said argumentatively.

Jack Peters took over. "Because it's almost unbelievably easy to learn. English, by the way, is extremely difficult. For instance, spelling and pronunciation are absolutely phonetic in Esperanto and there are only five vowel sounds where most national languages have twenty or so. And each sound in the alphabet has one sound only and any sound is always rendered by the same letter."

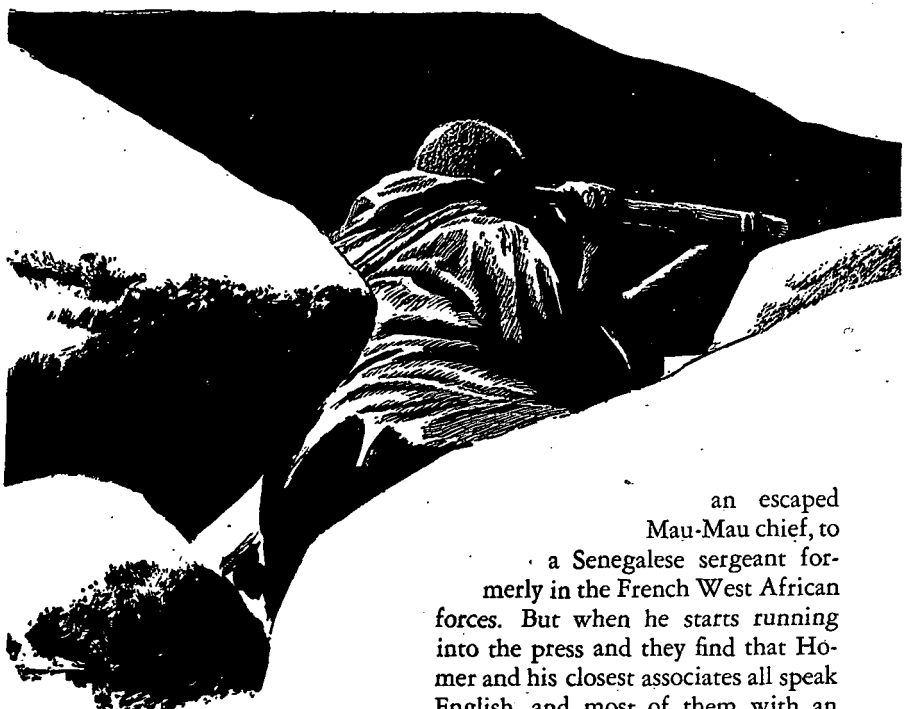
Dave Moroka said, "Actually, I don't know anything at all about this Esperanto."

The West Indian took him in, with a dominating glance. "Take grammar and syntax which can take up volumes in other languages. Esperanto has exactly sixteen short rules. And take vocabularies. For instance, in English we often form the feminine of a noun by adding *ess—actor-actress, tiger-tigress.* But not always. We don't say *bull-bulless* or *ghost-ghostess.* In Esperanto you simply add the feminine ending to any noun—there's no exception to any rule."

Jack Peters was caught up in his subject. "Still comparing it to English, realize that spelling and pronunciation in English are highly irregular and one letter can have several different sounds, and one sound may be represented by different letters. And there are even silent letters which are written but not pronounced like the *ugh* in *though.* There are none of these irregularities in Esperanto. And the sounds are all sharp with none of such subtle differences as, say, *bed/bad/bard/bawd,* that sort of thing."

Jimmy Peters said, "The big item is that any averagely intelligent person can begin speaking Esperanto within a few hours. Within a week of even moderate study, say three or

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



four hours a day, he's astonishingly fluent."

Isobel said thoughtfully, "There'd be international advantages. It's always been a galling factor in Africans dealing with Europeans that they had to learn the European language involved. You couldn't expect your white man to learn kitchen kaffir, or Swahili, or whatever, not when you got on the diplomatic level."

Cliff Jackson was thinking out loud. "So far, El Hassan is an unknown. Rumor has it that he's everything from a renegade Egyptian, to an escaped Mau-Mau chief, to a Senegalese sergeant formerly in the French West African forces. But when he starts running into the press and they find that Homer and his closest associates all speak English, and most of them with an American accent, there's going to be some fat in the fire."

"And El Hassan will have lost some of his mysterious glamour," Homer added thoughtfully.

Even Moroka, the South African, was beginning to accept the idea. "If El Hassan, himself, refused in the presence of foreigners ever to speak anything but Esperanto, the aura of mystery would continue."

Jimmy Peters, elaborating and obviously pushing an opinion he and his brother had already discussed, said, "We make it a rule that every school, both locally taught and foreign, must teach Esperanto as a required subject. All El Hassan gov-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ernmental affairs would be conducted in that language. Anybody at all trying to get anywhere in the new regime would have to learn the official inter-African tongue."

"Oh, brother," Cliff groaned, "that means me." He brightened. "We haven't any books or anything, as yet."

Isobel laughed at him. "I'll take on your studies, Cliff. We have a few books. Those that Homer and his team used to kill time with. And as soon as we're in a position to make requests for foreign aid of the great powers, Esperanto grammars, dictionaries and so forth can be high on the list."

With a sharp cry, almost a bark, a figure jumped into the entrance and with a bound into the center of the tent, sub-machinegun in hand. *"All right, everybody. On your feet. The place is raided!"*

Dave Moroka leaped to his feet, his hand tearing with blurring speed for his holstered hand gun. "Where's that bodyguard?" he yelled.

VII

"Hold it," Homer Crawford roared, jumping to his own feet and grabbing the South African in his arms. He glared at the newcomer. "Kenny, you idiot, you're lucky you don't have a couple of holes in you."

Kenny Ballalou, grinning widely, stared at Dave Moroka. "Jeepers," he said, "you got that gun out fast. Don't you ever stick 'em up when somebody has the drop on you?"

Dave Moroka relaxed, the side arm dropping back into its holster. Homer Crawford released him and the South African ran a hand over his mouth and shook his head ruefully at Kenny.

Isobel and Cliff crowded up, the one to kiss Kenny happily, the other to pound him on the back.

Homer made introductions to Dave Moroka and the Peters brothers.

"I've told you about Kenny," he wound it up. "I sent him over to the west to raise a harka of Nemadi to help in taking Tamanrasset." He joined Cliff Jackson in giving the smaller man an affectionate blow on the shoulder. "What luck did you have, Kenny?"

Kenny Ballalou rubbed himself ruefully. "If you two will stop beating, I'll tell you. I didn't recruit a single Nemadi."

Homer Crawford looked at him.

Kenny said to the tent at large. "Anybody got a drink around here? Good grief, have I been covering ground."

Isobel bustled off to a corner where she'd amassed most of their remaining European type supplies, but she kept her attention on him.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Dave Moroka said, his voice unbelieving, "You mean you haven't brought any assistance *at all?*"

Kenny grinned around at them. "I didn't say that. I said I didn't recruit any of the Nemadi. I never even got as far as their territory."

Homer Crawford sank back onto the small crate he'd been using as a chair before Kenny's precipitate entrance. "O.K.," he said, "stop dramatizing and let us know what happened."

Kenny spread his hands in a sweeping gesture. "The country's alive from here to Bidon Cinq and south to the Niger. Bourem and Gao have gone over to El Hassan and a column of followers was descending on Niamey. They should be there by now. I never got as far as Nemadi country. I could have recruited ten thousand fighting men, but I didn't know what we'd do with them in this country. So I weeded through everybody who volunteered and took only veterans. Men who'd formerly been in the French forces, or British, or whatever. Louis Wallington and his team were in Bourem when I got there and—"

"Who is Louis Wallington?" Jack Peters said.

Homer looked over at the Peters brothers and Dave Moroka. "Head of a six-man Sahara Development Project team like the one I used to head." His eyes went back to Kenny. "What about Louis?"

"He's come in with us. Didn't know how to get in touch, so he was working on his own. And Pierre Dupaine. Remember him, the fellow from Guadeloupe in the French West Indies, used to be an operative of the African Affairs sector of the French Community? Well, he and a half dozen of his colleagues have come in and were leading an expedition on Timbuktu. But Timbuktu had already joined up too, before they got there—"

"Wow," Homer said. "It's really spreading."

Cliff said, "Why isn't all this on the radio?"

Isobel had brought Kenny a couple of ounces of cognac from their meager supply. He knocked it back thankfully.

Kenny said to Cliff, "Things are moving too fast, and communications have gone to pot." He looked at Homer. "Have any of these journalists found you yet?"

"What journalists?"

Kenny laughed. "You'll find out. Half the newspapers, magazines, newsreels and TV outfits in the world are sending every man they can release into this area. They're going batty trying to find El Hassan. Man, do you realize the extent of the country your followers now dominate?"

Homer said blankly, "I hadn't thought of it. Besides, most of what you've been saying is news to us here. We've been keeping on the prod."

Kenny grinned widely. "Well, the nearest I can figure it, El Hassan is ruler of an area about the size of Mexico. At least it was yesterday.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

By today, you can probably tack on Texas."

Jimmy Peters, serious faced as usual, said, "Things are moving so fast, we're going to have to run to keep ahead of El Hassan's followers. One thing, Homer, we're going to have to have a press secretary."

"Elmer Allen was going to handle that, but he's still up north," Isobel said.

"I'll do it. Used to be a newspaperman, when I was younger," Dave Moroka said quickly.

Isobel frowned and began to say something, but Homer said, "Great, you handle that, Dave." Then to Kenny, "Where're your men and how well are they armed?"

"Well, that's one trouble," Kenny said unhappily. "We requisitioned motor transport from some of the Sahara Afforestation Project oases down around Tessalit. In fact, Ralph Sandell, their chief mucky-muck in those parts, has come over to us. But we haven't got much in the way of shooting irons."

Homer Crawford closed his eyes wearily. "What it boils down to, still, is that a hundred of those Arab Legionnaires, with their armor, could finish us all off in ten minutes if it came to open battle."

El Hassan continued moving his headquarters, usually daily, but he eluded the journalists only another twelve hours. Then they were upon the mobile camp like locusts.

And David Moroka took over with a calm efficiency that impressed all. In the first place, he explained, El Hassan was much too busy to handle the press except for one conference a week. In the second place, he spoke only Esperanto to foreigners. Meanwhile, he, Dave Moroka, would handle all their questions, make arrangements for suitable photographs, and for the TV and newsreel boys to trundle their equipment as near the front lines as possible. And, meanwhile, James and John Peters of El Hassan's staff had prepared press releases covering the El Hassan movement and its program.

Homer, to the extent possible, was isolated from the new elements descending upon his encampment. Attempting anything else would have been out of the question. At this point, he was getting approximately four hours of sleep a night.

Kenny Ballalou was continually coming and going in a mad attempt to handle the logistics of supplying several thousand men in a desert area all but devoid of either water or graze, not to speak of food, petroleum products and ammunition.

Isobel and Cliff were thrown into the positions of combination secretaries, ministers of finance, assistant bodyguards, and all else that nobody else seemed to handle, *including* making coffee.

It was Isobel who approached a subject which had long worried her, as they drove across country, the only occupants of one of the original hover-lorries, during a camp move.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

She said, hesitantly, "Homer, is it a good idea to give Dave such a free hand with the press? You know, there are some fifty or so of them around now and they must be influencing the TV, radio, magazines and newspapers of the world."

"He seems to know more about it than any of the rest of us," Homer said, his eyes on the all but sand-obliterated way. "We're going to have to move more of the men south. We simply haven't got water enough for them. There'd be enough in Tamanrasset, but not out here. Make a note to cover this with Kenny. I wonder where Bey is, and Elmer."

Isobel made a note. She said, "Yes, but the trouble is, he's a comparative newcomer. Are you *sure* he's in complete accord with the original plan, Homer? Does the El Hassan dream mean the same to him as it does to you, and . . . well, me?"

He shot her an impatient glance, even as he hit the lift lever to raise them over a small dune. "You and Dave don't hit it off very well. He's a good man, so far as I can see."

Her delicate forehead wrinkled and her pixie face showed puzzlement. "I don't know why. I get along with most people, Homer."

He patted her hand. "You can't please everybody, Isobel. Listen, something's got to be done about this king-size mob of camp followers we've got. Did you know Common Europe sent in a delegation this morning?"

"Delegation? Common Europe —?"

"Yeah. Haven't had time to discuss it with you. They found us just before we raised camp. Evidently, the British Commonwealth and possibly the Soviet Complex—some Chinese, I think—are also trying to locate us. Half of these people are without their own equipment and supplies, but that's not what worries me right now. We used to be able to camouflage our headquarters camp. Dig into the desert and avoid the aircraft. But if a group of bungling Common Market diplomats can locate us, what's to keep the Arab Legion from doing it and blessing us with a stick of neopalm bombs?"

Isobel said, "Look, before we leave Dave. Did you know he was confiscating all radio equipment brought into our camp by the newsmen and whoever else?"

Homer frowned. "Well, why?"

"Espionage, Dave says. He's afraid some of these characters might be in with the Arab Union and inform on us."

"Well, that makes some sense," Homer nodded.

"Does it?" Isobel grumbled.

He shot an irritated glance at her again and said impatiently, "Can't the poor guy do anything right?"

"My woman's intuition is working," Isobel grumbled.

Dave Moroka came into headquarters tent without introduction. He was one of the half dozen who

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

had permission for this. He had a sheaf of papers in his left hand and was frowning unhappily.

"What's the crisis?" Homer said.

"Scouts coming up say your pal Bey-ag-Akhamouk is on the way. Evidently, with a big harka of Teda from the Sudan."

"Great." Homer crowed. "Now we'll get going."

"Ha!" Dave said. "From what we hear, a good many are camel mounted. How are we going to feed them? Already some of the Songhai Kenny brought up from the south have drifted away, unhappy about supplies."

"Bey's a top man," Homer told him. "The best. He'll have some ideas on our tactics. Meanwhile, we can turn over most of his men to one of the new recruits, and head them down to take Fort Lamy. With Fort Lamy and Lake Chad in our hands we'll control a chunk of Africa so big everybody else will start wondering why they shouldn't jump on the bandwagon while the going is good."

Dave said, "Well, that brings up something else, Homer. These new recruits. In the past couple of days, forty or fifty men who used to be connected with African programs sponsored by everybody from the Reunited Nations to this gobblydygook outfit Cliff and Isobel once worked for, the AFAA, have come over to El Hassan. The number will probably double by tomorrow, and triple the next day."

"Fine," Homer said. "What's wrong with that? These are the people that will really count in the long run."

"Nothing's wrong with it, within reason. But we're going to have to start becoming selective, Homer. We've got to watch what jobs we let these people have, how much responsibility we give them."

Homer Crawford was frowning at him. "How do you mean?"

"See here," the wiry South African said plaintively, "when El Hassan started off there were only a half dozen or so who had the dream, as you call it. O.K. You could trust any one of them. Bey, Kenny, Elmer, Cliff, this Jake Armstrong that you've sent to New York, Rex Donaldson, then Jimmy and Jack Peters and myself. We all came in when the going was rough, if not impossible. But now things are different. *It looks as though El Hassan might actually win.*"

"So?" Homer didn't get it.

"So from now on, you're going to have an infiltration of cloak and dagger lads from every outfit with an interest in North Africa. Potential traitors, potential assassins, subversives and what not."

Homer was scowling at him. "Confound it, what do you suggest? That these Johnny-Come-Latelies be second-class citizens?"

"Not exactly that, but this isn't funny. We've got to screen them. The trouble with this movement is that it's a one-man deal, and has to be. The average African is either a barbarian or an actual savage, one

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ethnic degree lower. He wants a hero-symbol to follow. O.K., you're it. But remember both Moctezuma and Atahualpa. Their socio-economic systems pyramided up to them. The Spanish conquistadores, being old hands at sophisticated European-type intrigue, quickly sized up the situation. They kidnaped the hero-symbol, the big cheese, and later killed him. And the Inca and the Aztec cultures collapsed."

Homer was scowling at him unhappily.

Dave summed it up. "All we need is one fuzzy minded commie from the Soviet Complex, or one super-dooper democrat who thinks that El Hassan stands in the way of *freedom,* whatever that is, and bingo a couple of bullets in your tummy and the El Hassan movement folds its tents like the Arabs and takes a powder, as the old expression goes."

"You have your point," Homer Crawford admitted. "Follow through, Dave. Figure out some screening program."

Cliff came in. "Hey, Homer. Guess what old Jake has done."

"Jake Armstrong?"

"He's swung the Africa for Africans Association in New York over to us. They've raised a million bucks. What'll we do with it? How can he get anything to us?"

"We'll have him plow it back into publicity and further fund raising campaigns," Homer said. "That's the way it's done. You raise some money for some cause and then spend it all on a bigger campaign to raise still more money, and what you get from that one you plow into a still bigger campaign."

Cliff said, "Don't you *ever* get anything out of it?"

Dave and Homer both laughed.

Cliff said, "I've got some still better news."

"Good news, we can use," Homer said.

The big Californian looked at him in pretended awe. "A poet no less," he said.

"Shut up," Homer said. "What's the news?"

The fact of the matter was, he was becoming increasingly impatient of the continual banter expected of him by Cliff and even the others. As original members of the team, they expected an intimacy that he was finding it increasingly difficult to deliver. Among other things, he wished that Cliff, in particular, would mind his attitude when such followers as Guémama were present. The El Hassan posture could be maintained only in never to be compromised dignity.

Bey had once compared him to Alexander, to Homer's amusement at the time. But now he was beginning to sympathize with the position the Macedonian leader had found himself in, betwixt the King-God conscious Persians, and the rough and ready Companions who formed his bodyguard and crack cavalry units. A King-God simply didn't banter with

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

his subordinates, not even his blood-kin.

Cliff scowled at him now, at the sharpness of Homer's words, but he made his report.

"Our old pal, Sven Zetterberg. He's gone out on a limb. Because of the great danger of this so-far localized fight spreading into world-wide conflict—says old Sven—the Reunited Nations will not tolerate the combat going into the air. He says that if *either* El Hassan or the Arab Legion resort to use of aircraft, the Reunited Nations will send in its air fleet."

"Wow," Homer said. "All the aircraft we've got are a few slow-moving heliocopters that Kenny brought up with him."

Dave Moroka snapped his fingers in a gesture of elation. "That means Zetterberg is throwing his weight to our side."

Homer was on his feet. "Send for Kenny and Guémama and send a heliocopter down to pick up Bey and rush him here. He shouldn't be more than a day's march away. I wonder what Elmer is up to. No word at all from him. At any rate, we want an immediate council of war. With Arab Legion air cover eliminated, we can move in."

Cliff said sourly, "It's still largely rifles against armored cars, tanks, mobile artillery and even flame throwers."

All the old hands were present. They stood about a map table, Homer and Bey-ag-Akhamouk at one end, the rest clustered about. Isobel sat in a chair to the rear, stenographer's pad on her knees.

Bey was clipping out suggestions.

"We have them now. Already our better trained men are heading up for Temassinine to the north and Fort Charlet to the east. We'll lose men but we'll knock out every water hole between here and Libya. We'll cut every road, blow what few bridges there are."

Jack Peters said worriedly, "But the important thing is Tamanrasset. What good—"

"We're cutting their supply line," Bey told him. "Can't you see? Colonel Ibrahim and his motorized column will be isolated in Tamanrasset. They won't be able to get supplies through without an air lift and Sven Zetterberg's ultimatum kills that possibility. They're blocked off."

Jimmy Peters was as confused as his brother. "So what? to use the Americanism. They have both food and water in abundance. They can hold out indefinitely. Meanwhile, our forces are undisciplined irregulars. We gain a thousand recruits a day. They come galloping in on camelback or in beat-up old vehicles, firing their hunting rifles into the air. But we also lose a thousand a day. They get bored, or hungry, and decide to go back to their flocks, or their jobs on the new Sahara projects. At any rate, they drift off again. It looks to me that, if Colonel Ibrahim can hold out another week or so, our forces might melt away—all except the couple of hundred or so European and Ameri-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

can educated followers. And, cut down to that number, they'll eliminate us in no time flat."

Homer Crawford was eying him in humor. "You're no fighting man, Peters. Tell me, what is the single most fearsome enemy of an ultra-mechanized soldier with the latest in military equipment and super-firepower weapons?"

Jimmy Peters was blank. "I suppose a similarly armed opponent."

Homer smiled at him. "Rather, a man with a knife."

The expressions of the Peters brothers showed resentment. "We weren't jesting."

"Neither was I," Homer rapped. He looked around at the rest, including Bey and Kenny. "What happens to a modern mechanized army when it runs out of gasoline? What happens to a water-cooled machine gun when there is no water? What use is a howitzer when the target is a single man in ten acres of cover? Gentlemen, have any of you ever studied the tactics of Abd-el-Krim or, more recently still, Tito? Bey, I assume you have."

He had their attention.

"During the Second War," Homer continued, "this Yugoslavian Tito tied up two Nazi army corps with a handful of partisans—guerrillas. The most modern army in the world, the German Panzers, tried to ferret him out for five years, and couldn't. There are other examples. The Chinese operating against the Japs in the same war. Or one of the classic examples is Abd-el-Krim destroying two different Spanish armies in the Moroccan Rif in the 1920s. His barefoot men, armed with rifles, took on Primo de Rivera's modernized Spanish armies and trounced them."

Bey said, "Homer's right. Our only tactics are guerrilla ones."

Homer Crawford looked at Guémama, who had been standing in the background, unfamiliar with the language these others spoke, but holding his dignity. Crawford said, diplomatically, "And what sayest thou, O chieftain of the Tuareg?"

Guémama was gratified at the attention. He said in Tamaheq, "As all men know, O El Hassan, we now outnumber by thrice the Arab *giaours* may they burn in Gehennum. Therefore, let us rush in and kill them all."

Bey shuddered.

Homer Crawford nodded seriously. "Ai, Guémama, that would be the valorous way of the Tuareg. But the heart of El Hassan forbids him to sacrifice the lives of his people. Consequently, we shall use the tactics of the desert jackal. Instruct those of your people who are most cunning, to infiltrate Tamanrasset in the night. Let them not carry arms for they may well be searched by the Arab *melecha.*"

The Tuareg chieftain was intrigued. "And what shall they do in Tamanrasset, El Hassan? Suddenly seize arms, one night, and rise up in wrath against the Arab dogs and kill them all?"

Homer was shaking his head. "They will address themselves to the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Haratin serfs and spread to them the message of El Hassan. They will be told that in the world of El Hassan each man shall be free to seek his own destiny to the extent his mind and abilities allow. And no man shall be the less because he was born a serf, and no man the more because he was born to wealth or power in the old days."

"Aiii," Guémama all but moaned. "But such a message—"

"Is the message of El Hassan, as all men know," Homer Crawford said flatly. He turned to Kenny Ballalou. "Kenny, take over this angle. We want as many propagandists in that town as possible. It's already choked with refugees, most of them not knowing what they're fleeing. We might get recruits there, too. But mostly we want to appeal to the sedentary natives in town. They've got to get the dreams, too. Promise them schools, land . . . I don't have to tell you."

"Right," Kenny said.

Isobel said, "Maybe I ought to get in on this, too. The women might do a better job than men on this slant. It's going to take a lot to get a Tuareg bedouin to sink to talking to a Haratin on an equal basis."

Bey and Homer had bent back over the maps, but before they could get back into the details of guerrilla warfare against Colonel Ibrahim and his *legionnaires*, they were halted by a controversy from without.

"What now?" Homer growled. "This camp is getting to be like a three-ring circus."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The entrance flap was pushed aside and three of Bey's Sudanese tribesmen half escorted, half pushed a newcomer front and center.

It was Fredric Ostrander, natty as usual, but now in khaki desert wear. He was obviously in a rage at the three rifle-carrying nomads who had him in charge.

Bey spoke to the Teda warriors in their own tongue. Then to Homer in Tamaheq, which he assumed the C.I.A. man didn't know, "They picked him up in the desert in a hover-jeep. He was evidently looking for our camp." He dismissed the three bedouin with a gesture.

Ostrander was outraged. He snapped at Homer Crawford, "I demand an explanation of this cavalier attack upon—"

His face expressionless, Homer held up a hand to quiet the smaller man. He looked at Jack Peters and raised his eyebrows. *"Kion li la fremdul diras?"*

Jack, serious as ever, replied in Esperanto, then turned to the American C.I.A. man and said, "El Hassan has requested that I translate for him. He speaks only the official language of North Africa to foreign representatives. Undoubtedly, sir, you have proper credentials?"

Had Fredric Ostrander been of lighter complexion, his color would have undoubtedly gone dark red.

"Look here, Crawford," he snapped. "I'm in no mood for nonsense. The State Department has sent me to your headquarters to make another attempt to bring some sense home to you. As an American citizen, owing alliance—"

Homer Crawford spoke in Esperanto to Jack Peters who nodded seriously and said to Ostrander, "El Hassan informs you he owes alliance only to the people of North Africa whose chosen leader he is."

Ostrander knew they were kidding him, but at the same time the stand being taken was actuality. He glared at the Americans present whom he knew, Bey, Isobel, Cliff and Kenny. He snapped, "Very well, but I repeat what I told you when last we met. The State Department of the United States of the Americas will not stand idly by and see this area taken over by elements dominated by red subversives."

"Holy Mackerel," Cliff growled, "are you still tooting that horn?"

Dave Moroka said sarcastically, "It's an old wheeze. The definition of a red subversive is anybody who doesn't see eye to eye with the United States. They've been pulling the gag for decades. Remember Guatemala and Cuba? Do anything that interferes with American business abroad and the cry goes up, *he's an enemy of the free world!*"

Ostrander spun on him, his eyes narrowing.

Dave laughed. "The definition of members of the free world, of course, being anybody who follows the American line. Anybody is free, Spanish and Portuguese dictators, absolute monarchs in Arabia, Chinese warlords, if they're on the American side."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Ostrander snapped, "I don't believe we've met."

Moroka made a sweeping bow. "I'm afraid we don't move in the same circles. I've spent possibly a third of my life in prison—"

"Undoubtedly," Ostrander snorted.

". . . Put there by people such as yourself—in various countries—because I was fighting for my own version of freedom."

"Communism, undoubtedly!"

Moroka said softly, "I'm a South African, sir. Both my parents were killed in the 1960 riots. It seems that they had dark skins—even as you and I—and weren't able to see why that should keep them from *freedom.*"

Fredric Ostrander spun back to Homer Crawford. "I'm not here to quibble with self-confessed malcontents. I've been sent to represent the State Department, to report to them, and, above all, to do what I can to prevent your activities from redounding to the further advantage of the Soviet Complex. I assume you can assign me quarters."

Straight-faced, Jack Peters translated this into Esperanto, and, straight-faced, Homer answered in the same language.

Jack turned back to the impatient C.I.A. man. "El Hassan welcomes the representative of the United States of the Americas and hopes this will be the first step toward diplomatic recognition between North Africa and your great country. He has instructed me to find you quarters, which, possibly you may have to share with delegations from Common Europe or"—Peters cleared his throat—"the Soviet Complex. He further suggests that it might be well, if you maintain communications with your superiors, to have sent to you books on Esperanto, the official language of North Africa."

Dave Moroka put in, "By the way, we'll have to go through your things. We can't allow any radio communication from El Hassan's camp, except through official El Hassan channels—for obvious military reasons."

Ostrander snorted, stared indignantly at Homer again, spun on his heel and stalked from the tent. Jack Peters followed him but not before tipping an uncharacteristic wink at Homer.

When they were gone, Homer sighed and looked at Dave Moroka. "That reminds me, how are our other delegations coming?"

The South African grinned ruefully. "They're playing it cool. Waiting to see what way to jump. Give El Hassan some real success, and they'll probably jump at the chance to be first to recognize him. Especially these Soviet Complex opportunists. They'd just love to suck you into their camp."

Isobel looked at him. "After that tearing down you gave poor Ostrander about the United States, now you rip into the Soviet Complex. Just where do you stand, Dave?"

Dave shrugged her question off, as though there were more important things. "I'm an El Hassan man," he said. "Let those two overgrown powers handle their own troubles."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Jimmy Peters spoke up for the first time since Ostrander entered the tent. "You know," he said, seriously, "I'm beginning to wonder if the world can afford nationalistic patriotism. Haven't we gone too far along the road to think of ourselves any longer as Americans, or Russians, or French, or West Indians, or whatever? Hasn't the human race grown up beyond that point?"

Kenny said mockingly, "What! Aren't you proud of being a West Indian, and a loyal subject of Her Majesty?"

Peters ignored his tone. "Why should I be proud of my country? It was an accident of birth with which I had nothing to do, that made me a West Indian, rather than a Canadian, a Chinese, a Norwegian, or whatever. Intelligently, I should be proud only of things that I, myself, have accomplished."

Bey said, "If we can stop waxing philosophic for a while and get back to how most efficiently to clobber these Arabs—"

The Hindu entered Kirill Menzhinsky's small office behind the Indian souvenir shop in the Tangier Zocco Chico and said, "The operative Anton is on the receiver."

The agent superior of the *Chrezvychainaya Komissiya* for North Africa looked up from his desk and grunted acceptance of the message. He came to his feet and followed the other into a back room and took his place before a mouthpiece and screen.

The man whose party name was Anton nodded a greeting.

Kirill Menzhinsky said, "It's about time I heard from you, Anton."

"Yes. But the situation has been such that it was not easy to report."

"And now?"

"Briefly, I am at El Hassan's headquarters. You were correct. He is in actuality Homer Crawford. The others you mentioned are also with him, including the traitor Isobel Cunningham."

The Soviet Complex's agent allowed his eyebrows to rise.

Anton said flatly, "The dame has evidently renounced the party and now holds high rank in Crawford's inner circle."

"And you?"

"I am rapidly becoming his right-hand man. I am his press secretary and in charge of communications. Early in our acquaintanceship I was able to engineer an attempted assassination. I was able to, ah, save the life of El Hassan."

The Russian's eyes narrowed. "The assassins? Is there any chance that they might reveal your little trick?"

Anton grimaced. "I am not a fool, Kirill. Both of them were killed in the assassination attempt. El Hassan was most grateful."

"I see. And how would you sum up the present situation?"

"This area is swinging rapidly to El Hassan, but any sort of defeat and undoubtedly his followers would melt away. The bedouin are too volatile. Before he ever makes any real headway he will have to take the ma-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

jor commercial and industrial cities such as Dakar, Kano, Lagos, Accra, Freetown, Khartoum, and eventually, of course, Cairo, Casablanca, Algiers and so forth."

"And our friend El Hassan leans not at all in our direction?"

The man the Party called Anton shook his head. "He leans in no direction, except that which will unite and modernize North Africa. Neither do his immediate followers. They're a well-knit group and it seems unlikely that I could pry any of them away from him in case it became desirable."

"I see," Kirill Menzhinsky muttered. "I understand that a delegation from Moscow has arrived in El Hassan's camp. Have you contacted them?"

"Certainly not. My orders were to rise in the El Hassan hierarchy and await further orders. None of my current, ah, colleagues have any suggestion that I am identified with the Party. Which reminds me, an American C.I.A. man, Fredric Ostrander, has shown up. The fool seems to be under the impression that El Hassan is a Party tool."

"I know this Ostrander. Don't underestimate him, Anton. He's an extremely competent operative in the clutch, as the Americans call it."

"Perhaps. But nevertheless, there is no indication that the El Hassan movement leans either to East or West, nor do I see any signs that it is apt to in the future."

The Russian was scowling. "I see. Then perhaps it will be necessary for us to do something to topple our El Hassan before he becomes much stronger, and to find another to unite North Africa."

Anton frowned in his turn. "I don't know. This man Crawford—and his followers, for that matter—are motivated by high ideals. As you have said, North Africa is not ready for our socio-economic system. Men of the caliber of Homer Crawford could bring it into the modern age perhaps more quickly than another."

Menzhinsky chuckled. "Don't worry about it, Anton. Such matters of policy will be decided by others than you, or even me. Keep in touch with me more often, in the future, Anton."

"Yes, Comrade." His face faded from the screen.

Tamanrasset lies at an altitude of approximately 4,600 feet, about average for the Ahaggar plateau. Around it, such peaks as the Tahat reach 9,600 feet above sea level. The country is rugged, jagged, bleak beyond belief. With the possible exception of Southern Afghanistan in the Khyber area, there is no place in the world more suited for guerrilla warfare, less suited for the proper utilization of modern armor, particularly when the latter is forced to work without air cover.

Homer Crawford, equipped with an old-style telescope, was spread-eagled on top a rock outcropping, his only companion Isobel Cunningham. Directly before him, possibly two

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

miles in distance, was the desert city of Tamanrasset, to the right, a kilometer or so, Amsel where palatable water was to be found at eighteen meters depth.

"Our friend, the colonel, is up to something," he grumbled.

She had a pair of binoculars, of considerably less power than his glass.

"It looks as though Guémama's boys are on the run," she said.

"As per orders. The primary theory of partisan warfare is not to get killed. The guerrilla never stands and fights. If the regular forces he opposes can bring him to bay, they've got him." He interrupted himself to clip out, "Look at that tank, darling! There on the left!"

Isobel tightened, looked at him quickly from the side of her eyes. No. He'd said it inadvertently, his mind concentrated on the fighting men below. She had often wondered where she stood with Homer Crawford the man, as opposed to El Hassan the idealist. The tip of her tongue licked the side of her mouth, as she surreptitiously took him in. But Crawford the man would have to wait, there was no time, no time.

Isobel swung her glasses. "The one starting to go in a circle? There, it stopped."

"One of the snipers got its commander," Homer said. "You can't fight a tank without the commander's head being up through the hatch. That's a popular fallacy. You can't see well enough to fight your tank unless you've got your head up. And that's suicide when you're against guerrillas. The colonel ought to send his infantry out first."

Isobel said, "What did you mean when you said that he's up to something?"

Homer's eye was still glued to the eyepiece of his glass. "He's leaving his entrenchments and sending his vehicles out to capture our . . . our strong points."

"You mean our water, don't you?"

Bey came snaking up to them on his belly. He came abreast of Homer and brought forth his own binoculars. He watched for a moment and then muttered a curse under his breath.

"Guémama better start pulling back those men more quickly," he said.

"He will. He's a good man," Homer told him. "What's up?"

"Evidently, Colonel Ibrahim has decided to come out of retirement. He's sent small motorized elements to Effok, In Fedjeg, Otoul and even to Tahifet."

"And—?"

"And has taken them all, of course. Our men fall back, fighting a stubborn rear-guard action, taking as few casualties as possible."

"I don't get it," Homer bit out. "He's using up his fuel and ammunition and losing more men than we are. Certainly he can't figure, with the thousand odd troops he has, to be able to take and hold enough of the oases and water holes in this vicinity to push us out completely."

Bey said, "What worries me is the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

possibility that he knows something we don't. That he's figuring on being relieved or has a new source of fuel, ammunition and men on tap."

"The roads are cut. Our men hold every source of water from here to Libya and the Reunited Nations has put thumbs down on aircraft which eliminates an air lift."

"Yeah," Bey said, unhappily.

That evening, following the day's last meal, Cliff came into the headquarters tent grinning, broadly. "Hey, guess what we've liberated."

"A bottle of Scotch?" Kenny said hopefully.

"A king-size portable radio transmitter. Ralph Sandell knew about it. The Sahara Afforestation Project people were going to use it to propagandize the tribesmen into coming in and taking jobs in the new oases."

Dave Moroka, who'd been censoring press releases, shook his head. "That's why we need an El Hassan in this country," he complained. "They put a couple of million dollars into a radio transmitter, never asking themselves how many of the bedouin own radios."

Jack Peters said, "Wait a moment, you chaps. Didn't Bey capture a couple of Arab Legion radio technicians today?"

"They defected to us," Homer Crawford said, looking up from an improvised desk where he was poring over some supply papers with Isobel. "What did you have in mind, Jack?"

"There are radios in Tamanrasset. In fact, there's probably a radio in every one of those military vehicles of Ibrahim's. Why can't we blanket these Arab Union chaps with El Hassan propaganda? Quite a few of them are from Libya, Tunisia and Egypt. In short, they're Africans and susceptible to El Hassan's dream."

"Good man. Take over the details, Jack," Homer said. He went back to his work with Isobel.

Jimmy Peters entered with some papers in hand. He said, seriously, "The temperature is rising in the Reunited Nations—and everywhere else, for that matter. Damascus and Cairo have been getting increasingly belligerent. Homer, it looks as though the Arab Union is getting ready to go out on a limb. Weeks have passed since Colonel Ibrahim first took Tamanrasset and the Reunited Nations, the United States, the Soviet Complex and all others interested in North Africa, have failed to do anything. Everybody, evidently, afraid of precipitating something that couldn't be ended."

All eyes went to Homer Crawford who ran a black hand back over his hair in weariness. "I know," he said. "Something is about to blow. Dave has sent some of his best men into Tamanrasset to pick up gossip in the souks. Morale was dragging bottom among the legionnaires just a couple of days ago. Now they seem to have a new lease."

"In spite of the sabotage our people have been committing?" Isobel said.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"That's falling off somewhat," Cliff said. "At first our more enthusiastic followers were able to pull everything from heaving Molotov Cocktails into tanks, to pouring sugar in hover-jeep gas tanks, but the legionnaires have both smartened up and gotten very tough."

"Good," Dave Moroka said now.

They looked at him.

"Atrocities," he said. "In order to guard against sabotage, the legionnaires will be taking measures that will antagonize the people in Tamanrasset. They'll shoot a couple of teenage kids, or something, then they'll have a city-wide mess on their hands."

Isobel said unhappily, "It seems a nasty way to win a war."

Dave grunted his contempt of her opinion. "There is no way of winning a war other than a nasty one."

Bey came in, yawning hugely. His energy was inconceivable to the others. So far as was known, he hadn't slept, other than sitting erect in a moving vehicle, for the past four days. He said to Homer, "Fred Ostrander has been bending my ear for the past hour or so. Do you want to talk to him?"

"About what?" Homer said.

"I don't know. He has a lot of questions. I think he's beginning to suspect—just *suspect,* understand—that possibly the whole bunch of us aren't receiving our daily instructions from either Moscow or Peking."

Dave and Cliff both laughed.

Homer sighed and said, "Show him in. He's the only thing we have in the way of a contact with the United States of the Americas and sooner or later we're going to have to make our peace with both them and the Soviet Complex. In fact, what we're probably going to have to do is play one against the other, getting grants, loans, economic assistance—"

"Technicians, teachers, arms," Bey continued the list.

Kenny Ballalou looked at him and snorted. "Arms! If there's anything this part of the world doesn't need it's more arms. In fact, that goes for the rest of the world, too. In the old days when the great nations were first beginning to attempt to line up the neutrals they sent aid to such countries by the billions—and most of it in arms. How ridiculous can you get? Putting arms in the hands of most of the governments of that time was like handing a loaded pistol to an idiot."

Bey hung his head in mock humility. "I bow before your wisdom," he said. He left the room to get Ostrander.

The C.I.A. man had lost a fraction of his belligerence, but none of his arrogance and natty appearance. Homer wondered vaguely how the other managed to remain so spruce in the inadequate desert camp.

Jack Peters said, "What did you wish to ask El Hassan? I will translate."

"Never mind that, Jack," Homer said. "We'll get tougher about using our official language when we've gone a little further in building our

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

new government." He said to Ostrander, "What can I do for you. Obviously, my time is limited."

Fredric Ostrander said, "I've been gathering material for reports to my superiors. I've been doing a good deal of questioning, and, frankly, even prying around."

Cliff grunted.

Ostrander went on. "I've also read the various press releases, manifestoes and so forth that your assistants have been compiling."

"We know," Homer said. "We haven't put any obstacles in your way. We haven't any particular secrets, Mr. Ostrander."

"You disguise the fact that you are an American," the C.I.A. man said accusingly.

Homer said slowly, "Only because El Hassan *is not* an American, Mr. Ostrander. He is an African with African solutions to African problems. That is what he must be if he is to accomplish his task."

Ostrander seemed to switch subjects. "See here, Crawford, the State Department is not completely opposed to the goal of uniting North Africa. It would solve many problems, both African and international."

Kenny Ballalou laughed softly. "You mean, you're on our side?"

Ostrander turned to him, for once not incensed at being needled. "Possibly more than you'd think," he rapped. He turned back again to Homer Crawford. "The question becomes, why do you think that *you* are the man for the job? Who gave *you* the go-ahead?"

Bey, who had settled down into a folding camp chair, now came to his feet, his tired face angry.

But Homer waved him to silence. "Hold it," he said. Then to Ostrander. "It doesn't work that way. It's not something you decide to do because you're thirsty for power, or greedy for money. You're pushed into it. Do you think Washington, a retired Virginian planter wrapped up in his estate and his family, wanted to spend years leading the revolutionary armies through the wilderness that was America in those days? He was thrust into the job, there was no one else more competent to take it. Men make the times, Ostrander, but the times also make the men. Look at Lenin and Trotsky. Three months before the October Revolution, Lenin wrote that he never expected to see in his lifetime the Bolsheviks come to power. Within those months he was at the head of government and Trotsky, a former bookworm who had never fired a gun in his life, was head of the Red Army and being proclaimed a military genius."

Ostrander was scowling at him, but his face was thoughtful.

Homer said quietly, "It's not always an easy thing, to have power thrust into your hands. Not always a desirable thing." His voice went quieter still. "Only a short time ago it led me to the necessity of . . . killing . . . my best friend."

"And mine," Isobel said softly, almost under her breath.

Dave Moroka said, "Abe Baker," before he caught himself.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Kenny Ballalou looked at him strangely. "Did you know Abe?"

The South African recovered. "I've heard several of you mention him from time to time. He was a commie, wasn't he?"

"Yes," Homer said without inflection. "And a man. He saved my life on more than one occasion. As long as we worked together with only Africa in mind, there was no conflict. But Abe had a further, and, to him, greater alliance."

He turned his attention back to the C.I.A. man. "A man does what he must do," he finished simply. "I did not ask to become El Hassan."

Ostrander said, "Your motivation is possibly beside the point. The thing is that the battle for men's minds continues and your program, eventually, must align with the West."

"And get clobbered in the stampeding around between the two great powers," Kenny said dryly.

"You've got to take your stand," Ostrander said. "I'd rather die under the neutron bomb, than spend the rest of my life on my knees under a Soviet Complex government. Wouldn't you?" His eyes went from one of them to the other, defiantly.

Homer said slowly. "No, even though that was the only alternative, which is unlikely. Not if it meant finishing off the whole human race at the same time." He shook his head. "If it were only me, it might be different. But if it was a matter of nuclear war the whole race might well end. Given such circumstances, I'd be proud to remain on my knees the rest of my life. You see, Ostrander, you make the mistake of thinking the Soviet socio-economic system is a permanent thing. It isn't. It's changing daily, even as our own socio-economic system is. Even if the Soviet Complex were to dominate the whole world, it would be but a temporary phase in man's history. Their regime, in its time, right or wrong, will go under in man's march to whatever his destiny might be. Some day it will be only a memory, and so will the socio-economic systems of the West. No institutions are less permanent than politico-economic ones."

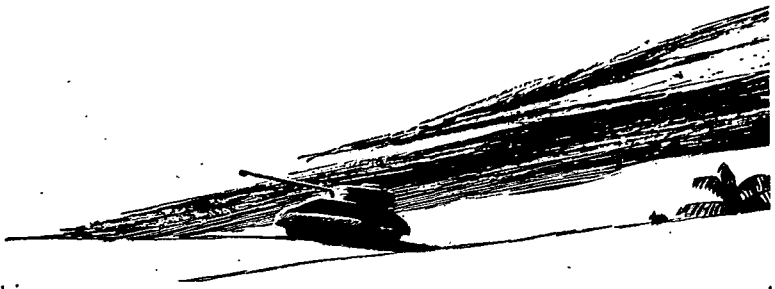
"I don't agree with you," Ostrander snapped.

"Obviously," Homer shrugged. "However, this is another problem. El Hassan deals with North Africa. The other problems you bring up we admit, but at this stage are not dealing with them. Our dream is in Africa. Perhaps the Africans will be forced to taking other stands, to dreaming new dreams, twenty or thirty years from now. When that time comes, I assume the new problems will be faced. By that time there will probably be no need for El Hassan."

Ostrander looked at him and bit his lip in thought.

It came to him now that he had never won in his contests with Homer Crawford, and that he would probably never win. No matter how strong his convictions, in the presence of the other man, something

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



went out of him.

There was strength in Crawford that must be experienced to be understood. When he talked, he held you, and your own opinions became nothing—stupidities on your lips. He had a dream, and in conversation with him, all other things dropped away and nothing was of importance but that dream. A dream? Possibly *disease* was the better word. And so highly contagious.

While they talked, an aide had entered and handed a report to Bey-ag-Akhamouk. He read it and closed his eyes in weariness.

"What's up, Bey," Homer asked.

"I don't know. Colonel Ibrahim has stepped up his attacks in all directions. At least two thirds of his force is on the offensive. It doesn't make much sense. But it must make sense to *him,* or he wouldn't be doing it."

Ostrander said, and to everyone's surprise there seemed to be an element of worry in his voice too, "I know Colonel Midan Ibrahim, met him in Cairo and in Baghdad on various occasions. He's considered one of the best men in the Arab Legion. He doesn't make military blunders."

Bey said, "Come on, Kenny. Let's round up Guémama and take a look at the front." He led the way from the tent.

There was a guard posted before the tent which doubled as press and communications center, and the private quarters of David Moroka.

The figure that approached timidly was garbed in the traditional clothing of the young women of the Tégéhé Mellet tribe of the Tuareg and bore an *imzad* in her left hand, while her right held a corner of her gandoura over her face.

The guard, of the Kel Rela tribe, eyed the one-stringed violin with its string of hair and sounding box made of half a gourd covered with a thin membrane of skin, and grinned. A

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Tuareg maid was accustomed to sing and to make the high whining tones of desert music on the *imzad* before submitting to her lover's embrace. *Wallahi!* but these women of the Tégéhé Mellet were shameless.

"Where do you go?" he said gruffly. "El Hassan's vizier has ordered that he is occupied and none should approach."

"He awaits me," she wavered. There was *khol* about her eyes, and indigo at the corners of her mouth. "We met at the *tendi* last night and he bid me come to his tent. It is for me he waits."

Wallahi! but his leader had taste, the sentry decided.

"Pass," he said gruffly. Even a vizier of such importance as this one must need solace at times, he decided philosophically.

She slipped past silently to the tent entrance where the Tuareg guard noticed she paused for a long moment before entering. He grinned into his

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

teguelmoust. Aiii, the little bird was timid before the hawk.

She stood for a moment listening, and then slipped inside, dropping the desert musical instrument to the ground. Dave Moroka's back was to her and even as she entered he flicked off the switch of the video-radio into which he had been speaking and scowled at it.

When he stood and began to turn, she covered him with the small pocket pistol. She had an ease in handling it which denoted competence.

His eyebrows went up, but he remained silent, waiting for her gambit.

Isobel said evenly, "You're a Party member, aren't you, Dave?"

"Why do you say that?"

She nodded infinitesimally to the set. "You were reporting just now. I heard enough just as I came in."

He took in her disguise. "My guard isn't as efficient as I had thought," Dave said wryly.

Isobel said, "You knew Abe Baker, didn't you?"

He looked at her, expressionlessly.

She said, "I already knew you belonged to the Party, Dave. No matter how competent an agent, it's something difficult to hide from any other long-time member. There's a terminology you use—such as calling it the Soviet Union, rather than Russia. No commie ever says Russia, it's always *the Soviet Union.* You can tell, just as a Roman Catholic can tell a person raised in the Church, even though the other has dropped away, or even as one Jew can tell another. Yes, I've known you were a Party member for some time, Dave."

"And?" the South African said.

"Why are you here?"

Dave Moroka said, "For the same reason you are, to further the El Hassan dream, the uniting and modernization of the continent of my racial heritage."

"But you are still a Party member and still report to your superiors."

Dave Moroka looked at the tiny gun she held in her hand.

"Don't try it," she said. "I have seen you in action, Dave. I have never seen a man move so ruthlessly fast . . . but don't try it."

"No reason to," he bit out. "Come on, let's go see Homer."

She was slightly taken aback, but not enough to release her control for even a split second. "Lead the way," she said.

Even at this time of evening, the headquarters tent was brightly lit and most of the immediate El Hassan staff still at work. Homer Crawford looked up as they entered.

Cliff Jackson saw the gun first and said, "Holy Mackerel, Isobel."

Fredric Ostrander was sitting to one side in discussion with the sober faced Jack Peters. He took in the gun and slowly came to his feet, obviously expecting climax.

Isobel said, "Dave's taking over control of communications had method. I just found him reporting to what must have been a superior . . . in the Party."

Homer Crawford looked from the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

South African to Isobel, then back to Dave again, without speaking. His eyes were questioning.

Dave said, his voice sharp. "I haven't time for details now. Isobel's right. I was a Party member."

"Was?" Ostrander chuckled. "That's the understatement of the year. I hadn't got around to revealing the fact as yet, but our friend Dave is the notorious Anton, one of the Soviet Complex's most competent hatchetmen."

Dave looked at him only briefly. "Was," he reiterated. He turned his attention to Homer and to Bey, who was staring tired dismay at this new addition to the load.

Homer still held his peace, waiting for the other to go on.

"I found out tonight why Colonel Ibrahim is attacking, instead of pulling in his horns as reason would dictate." Dave paused for emphasis. "The Soviet Complex has thrown its weight, in this matter at least, on the side of the Arab Union. They have insisted that Sven Zetterberg be dismissed as head of the Sahara Division of the African Development Project and that his threat to use Reunited Nations aircraft if the local fighting spreads to the air, be repudiated."

Kenny blurted, "Good grief . . . that means—"

Dave looked around at them, one by one. "It means," he said, "that the Arab Legion is going to be reinforced tomorrow morning by a full regiment of paratroopers."

"Holy Mackerel," Cliff groaned. "We've had it. Another regiment of crack troops in Tamanrasset and we'll *never* take the town."

Dave shook his head. "That's not the big thing. The paratroopers aren't going to drop in Tamanrasset. They're going to hit every oasis, every water hole, in a circumference of two hundred miles."

There was an empty silence.

Homer Crawford said finally, evenly, "In the expectation that every follower of El Hassan in the Sahara will either surrender or die of thirst, eh?" He didn't seem sufficiently impressed by the threatening disaster. He looked at Dave questioningly. "Why do you bother to tell us, Dave, if you're on the other side?"

Dave grunted sour amusement. "Because I've just become a full member of the team. I resigned from the Party tonight."

"Brother," Bey said, "you sure pick a helluva time to join up." He obviously was expressing the opinions of the majority.

Homer Crawford came to his feet and looked around at them. "All right," he said. "A new complication. Let's face up to it. There's always an answer. We're in the clutch, let's fight our way out."

Largely, they stared at him, but he ignored their dismay. He looked from one to the other. "We need some ideas. Let's kick it around. Isobel, Cliff, Jack, Kenny—?" His eyes went from one to the other. Obviously his own mind was churning.

They shook their heads dumbly.

Kenny said, "Ideas! We've had it, Homer!"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Homer Crawford spun on him and now the force they all knew was emanating from him. He laughed his scorn. "A month ago we were half a dozen fugitives. Now we're an army besieging a city. And you say we've had it? Listen, Kenny, if we have to we'll go back to being half a dozen fugitives again—those of us that are left. But the dream goes on! However, we're not going to have to. We're too near victory in this stage of the operation to sit down on the job because of a threatened reverse. Now then, let's kick it around. Jimmy! Dave! Kenny! Ostrander!"

Fredric Ostrander raised his eyebrows only slightly at being included in their number.

Bey, for once, was seemingly too exhausted to be brought to new enthusiasm. He tossed a detail map of Tamanrasset to the table. "And I'd just worked out a bang-up scheme for infiltrating into town, joining up with our adherents there, and seizing it while most of Ibrahim's men were out in the desert, trying to capture our nearer water holes."

Homer snapped, "It sounds like it still might have possibilities."

Ostrander looked down at the map, his face very tight. "How long would it take?"

Bey scowled at him, defeat dulling his mind. "What?"

"How long do you figure it would take to infiltrate Tamanrasset and capture it? Behind Ibrahim's back, so to speak."

Bey grunted. "A couple of hours in the early morning. I had a beautiful picture of the colonel's armor out in the desert, cut off from its petroleum supplies and ammunition dump while we held the town. Some of our men, the former veterans of the French West African forces, could have even operated the antitank guns he has mounted at Fort Laperrine."

The C.I.A. man's mouth worked.

Homer Crawford's eyes pierced him.

Ostrander walked over to the radio before which Kenny Ballalou sat. "See if you can raise Colonel Ibrahim for me."

Kenny scowled at him. "Why?"

"Do it."

Kenny looked at Homer Crawford.

Homer said, "O.K. Do it."

Kenny shrugged and turned to the set. While the others watched, Crawford's face alert, his eyes narrowed, the rest of them dull in apathy, the face of Colonel Ibrahim finally faded in on the screen.

Fredric Ostrander took his place at the instrument. He nodded, formally. "Greetings, Colonel, it seems a long time since last we met in Amman."

The Arab Legion officer smiled politely. "I had heard that you represented the State Department in this area, Mr. Ostrander, and have been somewhat surprised that you failed to make Tamanrasset your headquarters. It would have been pleasant to have renewed old friendship."

Ostrander cleared his throat. "I am

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

afraid that would have been difficult, Colonel, particularly in view of the stand of my government at this time."

On the screen, the other's eyebrows went up.

Ostrander said evenly, "Colonel, we have just been informed that a regiment of paratroopers has been put at your disposal and that they plan to land at various points in the Sahara in the morning."

The colonel said stiffly, "This is military information which I am not free to discuss, Mr. Ostrander."

Frederic Ostrander went on, his voice still even. "We have further been informed that the Reunited Nations has withdrawn its ban on aircraft, which would seem to free your paratroop carrying planes."

The colonel remained silent, waiting for the bombshell. It was obvious that he expected a bombshell.

Ostrander said, "As representative of the State Department I warn you that if these paratroop carrying planes take off tomorrow morning, the Seventh Airfleet of the United States of the Americas will enter the conflict on the side of El Hassan. Good evening, Colonel."

The C.I.A. man reached out and flicked the switch that killed the set. Then he took the snowy white handkerchief from the breast pocket of his jacket and wiped his mouth.

Isobel said, "Heavens to Betsy."

Kenny said indignantly, "Good grief, you fool, it won't take more than hours for your superiors to repudiate you. Then what happens?"

"By then, I assume, the battle will be over and Tamanrasset in El Hassan's hands. The Arab Union will then think twice before committing their paratroopers, particularly with captured armor in El Hassan's hands."

"And your name will be mud," Kenny blurted.

Ostrander looked at Homer Crawford. "Gentlemen, you must remember that I, too, am an African. I had thought that perhaps there would be a position for me on El Hassan's staff."

Crawford reached for the Tommy-Noiseless that leaned up against the improvised desk at which he worked. He said, "Let's get moving, Bey. We haven't much time. We're going to have to be able to announce its capture *from* Tamanrasset in a couple of hours."

"Not you," Bey said, grabbing up his own weapon and motioning with his head for Kenny and Cliff to come along. "You're El Hassan and can't be risked."

"I'm coming," Homer said flatly. "It's about time El Hassan began taking some of the same risks his followers seem to be willing to face. Besides, the men will fight better with me out in front. Got a gun, Fred?"

Ostrander said, "No. Where am I issued one?"

"I'll show you," Homer said, stuffing extra clips in his bush jacket pockets. "Come on, Dave."

The whole group began heading for the open air, Bey already yelling orders.

Fredric Ostrander looked at Dave

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Moroka. "Strange bedfellows," he said.

Moroka grinned wryly. "My long view hasn't changed," he said. "It's just that this African matter takes precedence right now."

"Nor mine, of course," Ostrander said. He cleared his throat. "However, I hope you last out the night. El Hassan needs strong men."

"Same to you," Moroka said gruffly. "Let's get going, or the fight will be over while we hand each other flowers."

Epilogue

El Hassan stood in the smoking, war-wasted ruin of Fort Laperine, his mind empty. The body of Jack Peters was ten feet to his left, burned beyond recognition and crumpled over a flame thrower which he'd eliminated in the last few moments of the fighting. Had he let his eyes go out the gun port before which he stood, it might have been possible for El Hassan to have picked out the bodies of David Moroka and Fredric Ostrander amidst those of the several hundred Haratin serfs who had swarmed out of the souk area at the crucial moment and stormed the half manned fort—unarmed save for knives and farm implements.

To his right, Dr. Warren Harding Smythe supervised two Tuareg who were carrying off the broken body of Kenny Ballalou; there was still faint life in it.

The doctor looked at him. "You are satisfied, I assume?"

El Hassan failed to hear him.

Smythe turned and stomped off, following his impressed nurses.

In the distance, Bey-ag-Akhamouk called hoarse orders from an overstrained throat, placing guns for a counterattack that would never come. The Arab Legion was broken and Colonel Ibrahim a prisoner. Large numbers of the survivors were defecting to the banner of El Hassan.

He threw his empty Tommy-Noiseless to the side. All he wanted now was sleep, the surcease of a few hours of oblivion.

Isobel, her face wan from the horror of the agony of the combat whose result was everywhere visible, was picking her way through the wreckage with Cliff Jackson.

El Hassan looked at her absently. Whatever message she bore held little interest to him.

Cliff said, "India has recognized El Hassan as legal head of state of all North Africa. It is expected that Australia will follow before the week is out."

El Hassan nodded. For the time, not caring.

Isobel said, "We have other word. It came by messenger." She closed her eyes in pain and handed him a small box.

He opened it and recognized the ring on the enclosed finger. He looked up at them.

Cliff Jackson growled low in his throat. "Elmer Allen. He's been captured by a leader of the Ouled Touameur clan of the Ouled Allouch tribe. You know this Abd-el-Kader?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

El Hassan was staring down at the finger, his mind slowly clearing of its fatigue. "He belongs to the Berazga division of the Chaambra confederation. I had a run-in with him a few months ago and had him jailed. He's nothing but a desert bandit on the make."

Cliff said, "He's escaped, has thrown his weight behind the Arab Union, proclaimed himself the Madhi and is uniting Algeria and parts of Morocco and Tunisia like a wildfire. The marabouts and Shorfa are backing him."

"Proclaimed himself the Mahdi?" Isobel said in question.

El Hassan turned to the girl and took a deep breath. "The original Mahdi was the holiest prophet since Mohammed and according to the more superstitious Moslems, he's still alive. According to Islamic tradition, he periodically shows up again in the desert and makes various predictions. When he does, it almost always winds up with a jedah, a holy war. Don't you remember in history the anti-British Mahdi at Khartoum, the killing of Chinese Gordon and so forth? That Mahdi was the son of a Dongola carpenter and he managed to conquer two million square miles in two years."

"But, what has this got to do with this Abd-el-Kader?"

"He's evidently proclaimed himself sort of a reincarnation of the original Mahdi. He's out to do the same thing we are—to unite North Africa. But in his case he doesn't exactly have the same dream and he's working under the green ensign of the Pan-Islamic Arab Union."

"And has Elmer Allen captive."

"Yes, he has Elmer." El Hassan's tone of voice turned sharp. "Cliff, go get Bey. Tell him we're forming a flying column and heading north."

Cliff was gone. El Hassan turned back to the girl. "You know, Isobel," he said softly, slowly, "in history there is no happy ending, ever. There is no ending at all. It goes from one crisis to another, but there is no ending." ■

The prophecies of our science-fiction writers have proven more accurate than the expectations of our scientists and statesmen.

LORD BERTRAND RUSSELL

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Continued from page 82 It can be predicted with considerable accuracy to what group or groups the ultimate advantage in such a situation will go. But in these past weeks, it became apparent that somebody else was winning out . . . somebody who could have won out only on the basis of careful and extensive preparation for this very situation.

"That was abnormal, and it was the appearance of an abnormal pattern for which we had been waiting. We find there are seven men involved. These men will be deprived of the advantage they have gained."

Ronald Black shook his head, said, "You're making a mistake, Cranehart. I'm signing no papers."

"Nor I," Sanford said thickly.

Cranehart rubbed the side of his nose with a fingertip, said meditatively, "You won't be forced to. Not directly." He nodded at the window. "On the landing flange out there is an aircar. It is possible that this aircar will be found wrecked in the mountains some four hundred miles north of here early tomorrow morning. Naturally, we have a satisfactory story prepared to cover such an eventuality."

Sanford whitened slowly. He said, "So you'd resort to murder!"

Cranehart was silent for a few seconds. "Mr. Sanford," he said then, "you, as a member of the Territorial Office, know very well that the Geest War has consumed over four hundred million human lives to date. That is the circumstance which obliges your government to insist on your co-operation. I advise you to give it."

"But you have no proof! You have nothing but surmises—"

"Consider this," Cranehart said. "A conspiracy of the type I have described constitutes a capital offense under present conditions. Are you certain that you would prefer us to continue to look for proof?"

Ronald Black said in a harsh voice, "And what would the outcome be if we did choose to co-operate?"

"Well, we can't afford to leave men of your type in a position of influence, Mr. Black," Cranehart said amiably. "And you understand, I'm sure, that it would be entirely too difficult to keep you under proper surveillance on Earth—"

Celia Adams said from outside the cabin door, "I think it is them, Phil. Both cars have started to circle."

Phil Boles came to the door behind her and looked up. It was early evening—Roye's sun just down, and a few stars out. The sky above the sea was still light. After a moment, he made out the two aircars moving in a wide, slow arc far overhead. He glanced at his watch.

"Twenty minutes late," he remarked. "But it couldn't be anyone else. And if they hadn't all come along, they wouldn't have needed two cars." He hesitated. "We can't tell how they're going to take this, Celia, but they may have decided already that they could make out better without us." He nodded towards the edge

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

of the cliff. "Short way over there, and a long drop to the water! So don't let them surprise you."

She said coldly, "I won't. And I've used guns before this."

"Wouldn't doubt it." Phil reached back behind the door, picked up a flarelight standing beside a heavy machine rifle, and came outside. He pointed the light at the cars and touched the flash button briefly three times. After a moment, there were two answering flashes from the leading car.

"So Wayne Jackson's in the front car," Phil said. "Now let's see what they do." He returned the light to its place behind the door and came out again, standing about twelve feet to one side of Celia. The aircars vanished inland, came back at treetop level a few minutes later. One settled down quietly between the cabin and the edge of the cliff, the other following but dropping to the ground a hundred yards away, where it stopped. Phil glanced over at Celia, said softly, "Watch that one!" She nodded almost imperceptibly, right hand buried in her jacket pocket.

The near door of the car before them opened. Major Wayne Jackson, hatless and in hunting clothes, climbed out, staring at them. He said, "Anyone else here?"

"Just Celia and myself," Phil said.

Jackson turned, spoke into the car and two men, similarly dressed, came out behind him. Phil recognized Ronald Black and Sanford. The three started over to the cabin, stopped a dozen feet away.

Jackson said sardonically, "Our five other previous Earthside partners are in the second car. In spite of your insistence to meet the whole group, they don't want you and Celia to see their faces. They don't wish to be identifiable." He touched his coat lapel. "They'll hear what we're saying over this communicator and they could talk to you, but won't unless they feel it's necessary. You'll have to take my word for it that we're all present."

"That's good enough," Phil said.

"All right," Jackson went on, "now what did you mean by forcing us to take this chance? Let me make it plain. Colonel Thayer hasn't been accused of collaborating in the Roye gun hoax, but he got a black eye out of the affair just the same. And don't forget that a planet with colonial status is technically under martial law, which includes the civilians. If Silas Thayer can get his hands on the guilty persons, the situation will become a lot more unpleasant than it already is."

Phil addressed Ronald Black, "Then how about you two? When you showed up here again on a transfer list, Thayer must have guessed why."

Black shook his head. "Both of us exercised the privilege of changing our names just prior to the outtransfer. He doesn't know we're on Roye. We don't intend to let him find out."

Phil asked, "Did you make any arrangements to get out of Roye again?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Before leaving Earth?" Black showed his teeth in a humorless smile. "Boles, you have no idea of how abruptly and completely the government men cut us off from our every resource! We were given no opportunity to draw up plans to escape from exile, believe me."

Phil glanced over at Celia. "In that case," he said, a little thickly, "we'd better see if we can't draw some up together immediately."

Jackson asked, staring, "What are you talking about, Phil? Don't think for a moment Silas Thayer isn't doing what he can to find out who put that trick over on him. I'm not at all sure he doesn't suspect me. And if he can tie it to us, it's our neck. If you have some crazy idea of getting off the planet now, let me tell you that for the next few years we can't risk making a single move! If we stay quiet, we're safe. We—"

"I don't think we'd be safe," Phil said.

On his right, Celia Adams added sharply, "The gentleman in the other car who's just started to lower that window had better raise it again! If he's got good eyesight, he'll see I have a gun pointed at him. Yes, that's much better! Go on, Phil."

"Have you both gone out of your minds?" Jackson demanded.

"No," Celia said. She laughed with a sudden shakiness in her tone, added, "Though I don't know why we haven't! We've thought of the possibility that the rest of you might feel it would be better if Phil and I weren't around any more, Wayne."

"That's nonsense!" Jackson said.

"Maybe. Anyway, don't try it. You wouldn't be doing yourselves a favor even if it worked. Better listen now."

"Listen to what?" Jackson demanded exasperatedly. "I'm telling you it will be all right, if we just don't make any mistakes. The only real pieces of evidence were your duplicator and the original gun. Since we're rid of those—"

"We're not rid of the gun, Wayne," Phil said. "I still have it. I haven't dared get rid of it."

"You . . . what do you mean?"

"I was with Beulah in the Fort Roye hospital when she died," Phil said. He added to Ronald Black, "That was two days after the ship brought the seven of you in."

Black nodded, his eyes alert. "Major Jackson informed me."

"She was very weak, of course, but quite lucid," Phil went on. "She talked a good deal—reminiscing, and in a rather happy vein. She finally mentioned the Geest gun, and how Uncle William used to keep us boys . . . Wayne and me . . . spellbound with stories about the Gunderland Battle, and how he'd picked the gun up there."

Jackson began, "And what does—"

"He didn't get the gun there," Phil said. "Beulah said Uncle William came in from Earth with the first shipment of settlers and was never off Roye again in his life."

"He . . . then—"

Phil said, "Don't you get it? He found the gun right here on Roye. Beulah thought it was awfully funny.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

William was an old fool, she said, but the best liar she'd ever known. He came in with the thing one day after he'd been traipsing around the back country, and said it looked 'sort of' like pictures of Geest guns he'd seen, and that he was going to put the inscription on it and have some fun now and then." Phil took a deep breath. "Uncle William found it lying in a pile of ashes where someone had made camp a few days before. He figured it would have been a planetary speedster some rich sportsmen from Earth had brought in for a taste of outworld hunting on Roye, and that one of them had dumped the broken oddball gun into the fire to get rid of it.

"That was thirty-six years ago. Beulah remembered it happened a year before I was born."

There was silence for some seconds. Then Ronald Black said evenly, "And what do you conclude, Boles?"

Phil looked at him. "I'd conclude that Norm Vaughn was right about there having been some fairly intelligent creatures here once. The Geests ran into them and exterminated them as they usually do. That might have been a couple of centuries back. Then, thirty-six years ago, one of their scouts slipped in here without being spotted, found human beings on the planet, looked around a little and left again."

He took the Geest gun from his pocket, hefted it in his hand. "We have the evidence here," he said. "We had it all the time and didn't know it."

Ronald Black said dryly, "We may have the evidence. But we have no slightest proof at all now that that's what it is."

"I know it," Phil said. "Now Beulah's gone . . . well, we couldn't even prove that William Boles never left the planet, for that matter. There weren't any records to speak of being kept in the early days." He was silent a moment. "Supposing," he said, "we went ahead anyway. We hand the gun in, with the story I just told you—"

Jackson made a harsh, laughing sound. "That would hang us fast, Phil!"

"And nothing else?"

"Nothing else," Black said with finality. "Why should anyone believe the story now? There are a hundred more likely ways in which a Geest gun could have got to Roye. The gun is tangible evidence of the hoax, but that's all."

Phil asked, "Does anybody . . . including the cautious gentlemen in the car over there . . . disagree with that?"

There was silence again. Phil shrugged, turned towards the cliff edge, drew his arm back and hurled the Geest gun far up and out above the sea. Still without speaking, the others turned their heads to watch it fall towards the water, then looked back at him.

"I didn't think very much of that possibility myself," Phil said unsteadily. "But one of you might have. All right—*we* know the Geests know we're here. But we won't be able to

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

convince anyone else of it. And, these last few years, the war seems to have been slowing down again. In the past, that's always meant the Geests were preparing a big new surprise operation.

"So the other thing now—the business of getting off Roye. It can't be done unless some of you have made prior arrangements for it Earthside. If it had been possible in any other way, I'd have been out of this place ten years ago."

Ronald Black said carefully, "Very unfortunately, Boles, no such arrangements have been made."

"Then there it is," Phil said. "I suppose you see now why I thought this group should get together. The ten masterminds! Well, we've hoaxed ourselves into a massive jam. Now let's find out if there's any possible way—*any possibility at all!*—of getting out of it again."

A voice spoke tinnily from Jackson's lapel communicator. "Major Jackson?"

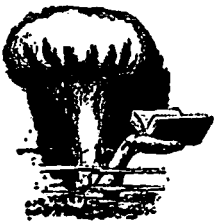
"Yes?" Jackson said.

"Please persuade Miss Adams that it is no longer necessary to point her gun at this car. In view of the stated emergency, we feel we had better come out now—and join the conference."

FROM THE RECORDS OF THE TERRITORIAL OFFICE, 2345 A.D.

. . . It is generally acknowledged that the Campaign of the 132nd Segment marked the turning point of the Geest War. Following the retransfer of Colonel Silas Thayer to Earth, the inspired leadership of Major Wayne Jackson and his indefatigable and exceptionally able assistants, notably CLU President Boles, transformed the technically unfortified and thinly settled key world of Roye within twelve years into a virtual death trap for any invading force. Almost half of the Geest fleet which eventually arrived there was destroyed in the first week subsequent to the landing, and few of the remaining ships were sufficiently undamaged to be able to lift again. The enemy relief fleet, comprising an estimated forty per cent of the surviving Geest space power, was intercepted in the 134th Segment by the combined Earth forces under Admiral McKenna's command and virtually annihilated.

In the following two years . . . ■



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the Reference Library

P. Schuyler Miller

BRAVE OLD WORLD

■ *The rumors that Aldous Huxley* was writing a sequel to "Brave New World" have been drowned in cold water by the publication of "Island" —Harper & Brothers, 335 pages, $5.00. "Island" is indeed the story of a Utopian society, but this is one that was founded a century ago and that collapses only under the superior force of our own greedy times. "Brave New World" satirized the forces acting a generation ago, which, Huxley suggested, could make an "ideal" society that was also a nightmare. The society which the people of Pala have, on the other hand, seems to be the author's idea of how people should live.

There is a thin thread of plot, which ravels out and catches fire at the end; it is merely an excuse for long discussions and explanations in which the hero is told about Pala and its ways. Will Farnaby is a journalist who is also the personal agent of his boss, the press lord and all-around tycoon, Lord Aldehyde—a grotesquerie that the author injects for no visible reason, and one that grates in time. Pala has a greedy neighbor, Colonel Dipa, with a self-assigned mission to bring that particular corner of the East Indies into the Twentieth Century. Pala also has oil, and no intention of doing anything about exploiting it. Pala also has a royal family, worldly in tastes and education, which finds the Colonel's—and Aldehyde's—more to its taste than the Palanese.

Farnaby reaches Pala as a castaway and is nursed back into condition by the hospitable Palanese. Meanwhile he looks and listens to the Palanese —and Huxlean—version of the best of all possible societies. It was hewn out and pieced together in the 1850's by a Scottish physician and an idealistic Raja, and over its century it has made the Palanese a healthy, happy people. Huxley seems to be saying that the same recipe would serve our world in the same way, but with his denouement he may also be saying

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

that there isn't a chance we will follow its example.

Aldous Huxley is one of the school of English and American intellectuals who have taken up Vedanta, the Hindu-based philosophy, and Zen or some other modification of Buddhism. The society of Pala is built on this same base. It is not a religion—as David Ben-Gurion, Prime Minister of Israel, pointed out in a recent article in the *New York Times Magazine.* Buddha was, in fact, an atheist; he denied the existence of supernatural forces, but held that Man has within him unused and unrealized forces and powers that equal and surpass anything promised by religion. Modified and overlain by elaborate symbolism taken from the Hindu religion and other sources, present-day Buddhism is very unlike what the Buddha taught—and Aldous Huxley has undoubtedly added his own ingredients in concocting the various yogas of Pala.

One of these is the yoga of love, and the Palanese approach to sexuality is one of the things which has bothered the European-educated heir to the throne, his theosophically inclined but pragmatic mother, and of course Farnaby. Some readers may be disappointed that there are no orgies to liven up the plot, but the Palanese view of sex, though very practical, is by no means orgiastic. The most sensational aspect of the yoga of love comes as a corps of children are given their first experience of the "*moksha*-medicine", a mushroom drug that produces visions and exaltation of the kind reported by most religious mystics. Huxley, you recall, has done a couple of books on his experiments with these mushroom drugs.

Like most Utopian novels—as distinct from the anti-Utopian ones like "Brave New World" or "1984" or "The Space Merchants"—"Island" is made up principally of long sections of argument and explanation, in which various of the Palanese set forth the structure and detail of the Palanese way of life. This will be interesting only in the degree that you find Huxley's ideas interesting, and dull if you do not. He has wasted very little time on indirect illustration of his points. Farnaby doesn't experience the Palanese verities; he sits and listens as they are expounded. The picture will undoubtedly be clearer and richer if, like Huxley, you are a student of Buddhism. Whether you will be convinced that you could find a place in such a society is something else again. After all, the book ends as Prince Murugan, the teenaged disciple of modernity, invades

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

his kingdom at the head of Colonel Dipa's soldiers and machine-guns down his old teachers.

Some of the early reviewers of the book have suggested that an item by item comparison with "Brave New World" can be made, with the same concepts leading to hell in the older book and to paradise on Pala. Children are brought up by the state in Ford's world, and by a complex "Great Family" on Pala. Both societies make great use of a euphoric drug: *soma* in the machine-world, *moksha* in the almost machineless Pala. And so it goes, item by item—yet, of course, the two worlds are totally different.

Most Utopian novels depict "ideal" societies in which nobody could possibly live with any degree of happiness for very long. Pala, tedious as it may become, at least sounds pleasant, but whether happiness can be achieved by decree, even when you yourself issue the decree, is dubious. Maybe Pala fell because it had to.

* * *

Need I repeat that the 20th World Science Fiction Convention will be held in the Pick-Congress Hotel, Chicago, over the Labor Day weekend, August 31-September 3. You will almost certainly find some conventioneers there earlier, and staying later, if you want to vacation in Chicago at convention time. Theodore Sturgeon, who certainly needs no introduction, is to be the principal speaker at the convention banquet; the annual "Hugo" awards will also be awarded then, but you are already too late to vote for them.

The $2.00 membership fee that helps keep the convention solvent and pays for progress reports and other announcements should go as soon as possible to George W. Price, Treasurer, 20th World Science Fiction Convention, P.O. Box 4864, Chicago 80, Illinois.

See you there.

» » »

A TALE OF TWO CLOCKS by James H. Schmitz. Dodd, Mead & Co., New York. 1962. 206 pp. $3.50.

The Schmitz name has a way of appearing on yarns that have no great pretensions to being Literature, but that—from a bystander's point of view, at least—must have been as much fun to write as they are to read. This newest in the series of operations in which Quillan, crook turned Federation Intelligence agent, has been involved is just as lively an adventure with colorful people and dastardly plots as any of the others you've seen here in Analog and elsewhere. But Quillan isn't the center of the show, this time. That place is taken very capably by one Trigger Argee, a capable young lady with a lilt and a mind of her own, who seems to be in about the position of a lightning rod in a thunder-storm.

If Trigger is the center of action, the real center around which plotters and counter-plotters whirl determinedly is the plasmoids. These

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

strangely potent synthetic creatures were the products and agents of the Old Galactics, an unknown, ancient race which rose and died in the Hub of the Galaxy long before the humanoid races came there. Now both the Federation of the Hub and various more-or-less maverick elements among the swarm of civilized worlds are trying to find out what makes the plasmoids tick, and to get control of enough of the things to make the ticking profitable. Trigger Argee's father was involved in the hurly-burly, and since his death she has likewise been in the mess up to her delectable ears. Anyway, a good bit more than knee-deep.

Because she dislikes having things done to her for her own good, because she objects on general principles to being pushed around, because she has a boy-friend many worlds away and no particular faith in the salutary effects of prolonged absence, because she is tired of having the aforementioned lightning hit all around her—in short, because she is Trigger—our heroine outwits her protectors and escapes right into the thick of things. Inevitably, a veritable asteroid belt of Good Guys and Bad Guys *starts rotating* around her—Quillan comes galloping to the rescue in a rather uncavalierly manner—and after a good deal of lively action, mental and physical, the two clocks of the title wobble weakly into the plot.

For sheer fun, I can only repeat the comment that is likely to be forced by almost any Schmitz story: "Hoooboy!"

THE LONG WINTER by John Christopher. Simon and Schuster, N.Y. 1962. 253 pp. $3.95.

"John Christopher" is *not*—as I have been assured from time to time—another pen-name for "John Wyndham", who is also John Beynon Harris, who has been a number of other people as well. He is, however, Christopher S. Youd, English like Harris-Wyndham, and like him quite busy with other types of writing under other names.

"The Long Winter" is one of the world-catastrophe yarns that the English seem to handle exceptionally well. Maybe it's a racial memory from the years when Stone Age folk, living on what is now the bottom of the North Sea, saw the waters of the Atlantic on the horizon and took to the Midland hills. This time the instrument of nature that is about to crush the English people is the onset of another Ice Age.

Let me say at once that John Christopher does *not* make the scientific mistake that countless other science fiction writers have made before him, and have the ice come as a relentless wall from the north. His title tells the story: a winter that simply doesn't end. The snow comes and doesn't melt. Streams and lakes freeze. No crops can grow. Eventually—though that lies beyond the end of the story—the snows will consolidate into firn, and that into solid ice, and the glaciers of the next Advance will be on the march.

Nature is not the only antagonist of the story, however; the "long win-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ter" is merely the gun at the head of the white race, that oddity of nature that some time during a previous interglacial era found its way into the cold, damp, cloudy northern forests where pigmented skin was no advantage and ability to soak up solar radiation—even to the point of sunburn—very definitely was. Americans flee to Latin America, but this is not their story. For the English and Europeans, the only refuge is in the newly formed black nations of tropical Africa. The book follows two couples into the final debacle.

Andrew Leedon is a television producer, assigned to the story of "Fratellini's Winter"; he has a beautiful, restless wife who switches allegiance to David Cartwell, a Home Office politico, leaving Andrew to comfort David's wife, Madeleine. When the move to the tropics comes, it is Carol Leedon who goes first and who with ruthless pragmatism finds a place for herself as mistress of a Nigerian official. Andrew Leedon and Madeleine have no such pragmatism and no such fortune; they go through the same grim process of impoverishment and degradation that their black hosts know well. Indeed, if the parallel were to be drawn more grimly and realistically, they would have sunk even deeper into the slums of Lagos than they do before rescue comes in the form of a job for David. Meanwhile, Madeleine has found a way to return to London and her husband, and Andrew soon follows in a Nigerian expedition, sent to record what has happened to England—and to obtain a foothold there for the time when Fratellini's Winter eventually ends.

In the final, adventurous portion of the book, the expedition fights its way into London, buried in the deepening snow. David Cartwell is alive and in authority, and has no intention of leaving England to anyone, however well-intentioned. The dog will die, if need be, defending its home—or its manger. And, of course, Andrew must also decide what future to choose.

It's not up to the same author's "No Blade of Grass," and it hasn't the excitement of John Wyndham's catastrophic novels, but in a quiet way "The Long Winter" makes its point: tables can turn, but men remain men.

Incidentally, for an excellent, readable account of what an ice age is really like, I recommend "The World of Ice," by James L. Dyson, published by Knopf for $6.95. The illustrations are superb, and the text not only supplies plenty of good, solid meat in digestible packages, but explodes a number of sturdy myths. Those mammoths frozen into the Siberian permafrost *didn't* freeze instantaneously, as innumerable books and articles insist, and the Explorers Club *didn't* eat filet of Alaskan mammoth in 1951—though a good many of its members were annoyed when they found they had been tricked.

» » »

THE WIND FROM NOWHERE by J. G. Ballard. Berkley Medallion

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Books, N.Y. 1962. No. F-600. 160 pp. 50¢

Readers of the English science fiction magazine, *New Worlds,* will recognize this paperback as the serial "Storm Wind." For once I prefer the book title, because the origin of the wind that sweeps the world to ruin is never explained or even rationalized.

Unlike John Christopher's "The Long Winter," this is a practically straight man-against-cataclysm story with human conflict kept to a minimum until the final chapters. The wind simply starts blowing with steadily increasing force, everywhere in the world, and keeps on blowing until civilization is flattened, vegetation is gone, the soil is stripped off the bare rocks, and what is left of mankind is holed up in refuges under the earth. The approach is that of one of the innumerable catastrophe films, but the story is so well handled that the stereotypes almost justify themselves.

The author, who has been making great progress in short science fiction, shows his readers the storm and its havoc through the eyes of several sets of characters, who in the end are all brought together very plausibly. Donald Maitland is a youngish scientist who has hoped to leave his socialite wife for a new career in British Columbia—until all ships and planes are stopped by the storm. Andrew Symington is an electronics engineer in the English Air Ministry, with a better comprehension than most of what is happening. Commander Steve Lanyon of the U.S. Submarine *Terrapin*—one of the few craft that can move in spite of the wind—is holed up in the naval base at Genoa, but has to get overland to Nice and back to pick up a general injured in a motor crash. Simon Marshall, chief of a special intelligence coordinating center to which Symington is attached, seems to have odd connections with some colossal enterprise going on behind the scenes.

All this is convincingly and craftily woven together in the final violent scenes. For a first novel, J. G. Ballard shows a real mastery of action and suspense.

» » »

IN HIGH PLACES by Arthur Hailey. Doubleday & Co., Garden City, N.Y. 1962. 415 pp. $4.95.

This is one of those "straight" novels that edges into this department from time to time because it is set in the future, and like any good science fiction story extrapolates present trends to support a plot that wouldn't hold together in the here and now. Doubleday didn't send out copies to science fiction reviewers, and I doubt that it will reprint the book in its science fiction book club.

The future of the story is not very far ahead. The United States and Russia are at the brink of nuclear war. American missile bases are strung in a taut line across the continent, south of the Canadian border—and Canadian Prime Minister James Howden realizes that even if these

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

missiles do bring down all or most of the Soviet rockets with H-bomb warheads, they will explode over the industrial centers and wheatlands of Canada. The States may survive; Canada won't. Consequently, when a phone call comes from the White House, he is ready to go to Washington to make a deal—an Act of Union, making Canada and the United States one nation militarily and economically for at least twenty-five years. In return, Canada will get Alaska.

This is the extent of the fantasy in the plot—and how fantastic it seems is something Canadians will know best. The novel was serialized in *Maclean's* and is the work of a Canadian novelist, so there can be no accusations of American interference.

Actually, "In High Places" is a Canadian counterpart of our "Advise and Consent." Its theme is the ruthlessness of politics and what happens to otherwise honorable men who have committed themselves to playing by its basic rule that the end—which may be the survival of a nation or a victory in the next election—is full justification for any means that need be used. The Prime Minister, early in his political career, bought off a competitor; he is being blackmailed by a threat to publish the old agreement, discrediting himself and his party, forcing a national election, and starting a domestic squabble at the very time when he must bring about national unity behind the Act of Union. In a secondary plot, tightly interlaced with the main one, a young Vancouver lawyer is persuaded to take up the cause of a stateless stowaway, denied admission to Canada by the Immigration authorities. Both—and still other subsidiary plot threads—are handled with a craftsmanship that seemed to have gone out of fashion in modern fiction.

Incidentally, this peep into the tangle of Canadian political maneuvering—like the view of American government in "Advise and Consent"—makes the best accounts of Galactic politics look like kindergarten stuff. Science fiction writers just haven't had enough imagination to make such things realistic.

» » »

AFTER DOOMSDAY, by Poul Anderson. Ballantine Books, N.Y. No. 579. 1962. 128 pp. 35¢

Poul Anderson delights in giving his readers more than their money's worth, in that many or most of his stories can be read with equal pleasure for several different reasons. This expanded two-part *Galaxy* serial is a prime example of what I mean.

On one level, "After Doomsday" is an adventure story of a handful of Earthmen against a universe of hostile aliens. Two exploring ships return to Earth to find it blasted to smoking cinders and circled by a swarm of hostile missiles. One is American, with a crew of men; the other is European, crewed by women. And so Carl Donnan, who emerges as leader of the Americans, and Si-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

grid Holman, of the women's ship, head out into the polyracial Galaxy with a dual problem: find others like themselves, so that the human race can persist, and find the murderers of Earth.

On a second level, the book is a formal mystery, with the clues fairly presented, cunningly camouflaged, and suitably ambiguous. Unlike ordinary mysteries, the scale is cosmic: what planet—what civilization—murdered Earth?

On still a third level, "After Doomsday" utilizes in fictional form some of the universals of anthropology—expanded here into galactic xenology. There is the all-important point, for instance, that cultures are likely to complement each other, each having developed along lines to complement each other, each having developed along lines which the other has neglected, and that the true potential of civilization can never be reached until all work together. And here the author is again playing too fair with his readers—as he did in his first "straight" mystery. In that book, the characters were so graphically depicted that it became evident that there was only one who could be the kind of man the murderer had to be. Here the clues don't point quite so straight to the guilty world, but you'll spot it by studying the characters of the races you meet rather than their overt actions.

Incidentally, I don't know what the cover illustration is supposed to represent. Maybe it belongs on Poul Anderson's next book for Ballantine.

THE ALLEY GOD by Philip Jose Farmer. Ballantine Books, N.Y. No. F-588. 1962. 176 pp. 50¢

The three novelettes collected in this volume have the strong maverick brand of the author's unconventionality on them. One, "The Captain's Daughter"—originally published in the October 1953 *Science Fiction Plus* as "Strange Compulsion"—is Farmer and science fiction at their best. The third, "The God Business," is Rabelasian fantasy. The opener, "The Alley Man," is another example of the innate variety of science fiction.

The idea of a surviving Neanderthal man has been used many times in science fiction, and I think I am safe in saying that no two stories have been alike. L. Sprague de Camp's "The Gnarly Man" and my "Old Man Mulligan," planned at the same bull-session, were completely different, and "The Alley God" is utterly so. It is a robust, rambling comic tragedy of a dying species, trying to keep its heredity straight, clinging to its old legends, holding its own against the *G'yaga*, the False Folk who have inherited the Earth. The roaring, rutting, one-armed Old Man Paley who lives on the city dump and hunts the Old King's hat of power through its alleys, who guzzles beer and seduces social workers with equal facilities, is Alley Oop as seen by Eugene O'Neill. The story is negligible; the character is everything.

"The Captain's Daughter," on the other hand, is pure science fiction—

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

an intensely detailed biological mystery, one of the strange reflections of sex which the author has adopted as his hallmark since "The Lovers" appeared. It is as craftily and solidly fitted together as the best locked-room mystery John Dickson Carr ever constructed, and forces you to create an image of the strange thing that possesses the Captain's daughter, from the accumulating evidence of what it does to her.

"The God Business," from *Beyond,* is fantasy of a style that was popular in Greek and Roman times and deftly revived by Thorne Smith. A bottle of the legendary brew of a Celtic god, let loose in central Illinois, has converted the valley of the Illinois River into a Never-Never Land of demigods out of *Pogo* and Apuleus, where symbols take flesh and the dead may rise. Into this place of solidified hallucination, stark naked by way of a disguise, venture an irrascible agent of the Food and Drug Administration and a Major in the Marines, female. What follows they bring upon themselves —which is another way of saying it was fated, or planned by the Great God Mahrud, nee "Bull" Durham.

If you've learned by now that you never know what to expect from a Farmer story—then you know what to expect in "The Alley God."

» » »

THE GLASS CAGE by Adam Lukens. Avalon Books, New York. 1962. 223 pp. $2.95

Adam Lukens hasn't yet worked his way into the top rank of science fiction and fantasy writers, but if he wants to try there's a good chance he'll make it. He has already, with four books, become a guarantee of a good book in Avalon's rather ordinary series of novels. What's more, he never repeats himself—and if you argue that that is no guarantee of promise, with only four books on the shelves, remember that many a writer has found his rut with two.

"The Glass Cage" is a rather unevenly but consistently interesting crime story, set in a strange segment of a strange future society. Commerce among the worlds is taken for granted, and a guild system has grown up to knit together the professions, including the carnival folk. Focus of one of the strangest acts ever to tour the planets is Garth Overlung, the Wizard—a man who was not a man, but who was nevertheless murdered. Abe Kinosky, Death Examiner of the Carny Guild, intends to find out how, why and by whom.

Oberlung was a freak among freaks. A member of a satyr-like hoofed race that left its eggs to hatch in the bellies of the carnivorous Birth Plants of Ambigo, he was the victim of an accident that threw the plant's and his metabolism out of balance. Machines, housed in a glass cage, could hold his body together for short periods of time, after which he slumped into living pulp. He turned this weakness into a strength, and made the horror of his transforma-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

tion the climax of a group of vaudeville and carnival acts that toured the pleasure centers of the Galaxy.

Then Garth Oberlung decided to take the show to Earth, and there he was trapped by a killer who—Kinosky's investigation showed—had been hunting him for years. A roving robot news-camera caught him as he returned to the thicket of Birth Plants where he had been born—to die a terrible death under the hypnotically implanted illusion that his mother-plant would make him whole.

There are plenty of faults to be found with details in the development of the story, but other details outweigh them. The concept of the Harlequinades, for example—girls who escape the restrictions of their native societies and lose their identities in a formal disguise that earns them a peculiar place in the Carny world. Object that the non-humans are too human. Object that the flash-back technique by which Abe Kinosky builds his case is distracting. Object that the character of Garth Oberlung is never made clear enough so that you can judge what he feels or thinks. For all that, "The Glass Cage" is a fascinating story that, I trust, points to more to come.

» » »

THE WALL AROUND THE WORLD by Theodore R. Cogswell. Pyramid Books, New York. No. F-703. 1962. 160 pp. 40¢

Only one of the ten stories in this collection originated here in Astounding, but it is the best of the lot and a story that has been long and fondly remembered. It is "The Spector General," and it was here ten years ago. In fact, most of the stories date from around that period. This merely means that the author finds other things to do than write science fiction and fantasy, or if he writes more is choosy about what he tries to sell.

You remember "The Specter General," don't you? The repair station of the ancient Galactic Empire that has maintained its skills and its discipline through the centures, on an out-of-the-way crumb of a world, until the forces that crumbled the Empire discover it again? Sure you do. Then there's "Invasion Report," in which a bunch of kids, playing war in an abandoned spaceship, see a real invasion fleet approaching. Or—another top notcher—the title story, whose young hero can fly his broom to school as well as anybody but wants to find a mechanical way of getting over the black stone barrier around his little world.

There are short gimmick yarns, very like some that Fredric Brown has perpetrated: "Emergency Rations," for example, about the hideous plan that hideous aliens devise for infiltrating a human post. Or "The Masters," in which the last vampire welcomes an army of invaders to an empty Earth. Or "Wolfie", in which very unpleasant things happen to a temporary werewolf. Or "Things," in which a swindle backfires. Or "Test Area," which has to

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

do with the unplanned results of time-tinkering. Or "Prisoner of Love," which teaches that the only safe warlock is an expert warlock. Or, most unpleasant of all, "The Burning," which makes some of Fritz Leiber's vignettes of the future seem positively delightful.

» » »

THE DARK PLANET by J. Hunter Holly. Avalon Books, New York. 1962. 224 pp. $2.95

J.—for Joan—Hunter Holly painted such an unforgettable portrait of a totally horrible alien in her second book, "Encounter," that she is going to have a very tough time living up to it. "The Dark Planet" doesn't make the mark—in fact, it is the poorest of her books to date.

The plot could be classified as VIIa-2b in Walter F. Murgatroyd's "Catalog of Science Fiction Stereotypes." Earth is invaded by humanoid Nasties—they kill off most of the human race with a virus, then move in to enslave the remnants. Boy, a survivor, becomes a dedicated member of the Underground. Boy, now a Man, takes Earth's case to a Galactic Tribunal and by force of rhetoric and craft wins out.

Contrast this with much the same kind of situation in Poul Anderson's current paperback, "After Doomsday." A spark of the fire we saw in "Encounter" smolders for a while in the personality of the black sheep of the Federation Council, Janotek, but there isn't much more than smoke, and Nathan Cory is never believable. Neither, this time, are the villains. Too bad.

» » »

INDEX TO THE SCIENCE FICTION MAGAZINES: 1961, compiled by Al Lewis, 1825 Greenfield Ave., Los Angeles 25, California. 1962. 44 pp. 50¢

From time to time, whenever a worthwhile example comes my way, I try to call readers' attention to the useful bibiliographical work done by fans or groups of fans. This is an important example—the first of what I hope will be a series of annual indexes to the current science fiction and fantasy magazines, both American and English. It uses the format of Don Day's "Index to the Science Fiction Magazines, 1926-1950," whose long-delayed supplement will extend the listings through 1960. That is, the magazines published during the year are first listed alphabetically, and the contents of each issue given. This is followed by an author index covering all the listed magazines, including a partial list of pseudonyms: e.g. Murray Leinster is the pseudonym of Will F. Jenkins and John Wyndham that of John Beynon Harris. Finally, all stories published during the year are indexed by title.

Ron Ellik—who has been representing American fandom at the annual British convention—and John Trimble, both of the Los Angeles Science Fiction Society, are listed as publishers, and the assistance of

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

bibliographer Ed Wood, briefly a Pittsburgher but now exiled to the fanless wastes of Idaho Falls, is acknowledged.

» » »

EDGAR RICE BURROUGHS, A BIBLIOGRAPHY by Bradford M. Day. Science Fiction & Fantasy Publications, 127-01 . 116 Ave., South Ozone Park 20, N.Y. 1962. 48 pp. $1.10

I am indebted for information on this new edition of Brad Day's Burroughs bibliography to Bob Hyde, président of the Burroughs Bibliophiles. It is a much expanded and partially corrected version of the one Day brought out in 1956. All Burroughs' books and magazine appearances are listed, descriptive information is supplied for each book, and reviews of many of them are quoted. There is also a two-page biographical sketch of Burroughs. The 48-page booklet is lithoprinted, with a pictorial cover; it is smaller than the earlier edition, measuring 6 by 9¼ inches. Bob considers it an essential tool of any Burroughs collector.

If you are interested in the activities of the Burroughs Bibliophiles, write to C. B. Hyde, 454 Elaine Drive, Pittsburgh 36, Pa. The group will meet some time during the Chicago convention, Labor Day weekend.

» » »

THREE FAN PUBLICATIONS

As you know, if you read this department at all regularly, science fiction/fantasy fandom undertakes a great deal of bibliographical work, much of it excellent and very valuable to the collector and historian of the *genre*. Two such items have just come in.

"The Complete Checklist of Science-Fiction Magazines" is compiled by Bradford M. Day, who did the notable "Index on the Weird and Fantastica in Magazines". It is $1.10 from the publisher, 78-04 Jamaica Ave., Woodhaven 21, N. Y. It lists, on a world-wide basis, all magazines devoted primarily to science fiction, fantasy, and weird tales; it does *not* include magazines like *Argosy* which published only occasional fantasy or SF. Nor does it include the mass of comics and "monster" magazines.

"Who's Who in Science Fandom" is 50¢ from L. D. Broyles, Rt. 6, Box 453P, Waco, Texas. This will be useful if you go to the Chicago Science Fiction Convention come Labor Day, and want to know who all the people who are *not* writers may be. It is also international in scope, but any such volume that reduces Sam Moskowitz to four lines and misses Forrest J. Ackerman entirely is only nibbling at a vast and complex population.

★ ★ ★ ★ ★

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Continued from page 5 thermodynamics, and has less mass-energy than the input . . . but he has added information-value so great that, unless the metal is platinum or the like, the added information far exceeds the value of the removed metal.

Information, unlike mass-energy, *is not conservative.* That is, I can give you a valuable piece of information, yet still have the information myself, and you can, in turn, pass it on to thousands. Equally, information can be destroyed, which mass-energy cannot. When the library of Alexandria was burned, not a whit of mass-energy was destroyed . . . but the amount of information forever destroyed is inestimable.

An industry can, therefore, by adding information value to its fuel-input, yield a product having greater value than that of the fuel consumed.

An industry that produces a net increase of value is beneficial to the national economy; one that produces a net decrease of value is, quite obviously, a detriment and should be eliminated.

The old-fashioned terms for these two situations were "profitable" and "unprofitable." The difficulty with those terms today is that the word "profit" now has a highly negative semantic loading—it's equated to "greed," "selfishness," "inhumanity" and other wicked things like that.

So let's consider one particular industry—the steel industry, which is a fine example of how one group can go about getting far more than its due share of the national product.

President Kennedy has won a great victory in forcing the steel industry to renounce its right to greedy-selfish-inhumane-profits . . . but I believe I can show that the United States has just suffered a disasterous defeat. The steel industry was clubbed into yielding the right to profits by threat of what might well be called undue process of law—but one thing no State will acknowledge or allow a citizen to sue it for, is barratry—the offense of unwarranted and harassing legal suits.

The essence of the matter is that the steel-workers, in their fight for what they consider justice, have forced successive wage increases. This means they've forced the steel industry's "fuel" costs upward. Meanwhile, they have bitterly fought against the introduction of automation, and labor-reducing—i.e., fuel-reducing—methods.

And President Kennedy has demanded that the steel industry not increase its fuel intake from the general economy.

An industry, like an animal organism, can live, for a time, with an energy output greater than its energy intake, by consuming its own tissues. The steel industry could, for example, continue to turn out steel ingots for a time by simply melting down the steel structures of its blast furnaces and steel production machines. Equally, it can, for a time, pay the workers by consuming its capital assets in a more subtle way.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

But, of course, not for any long period.

It is quite unnecessary to argue, at this point, whether or not the steel industry is, or is not, achieving a net surplus of value; the principles involved are readily observable. They are:

1. It is held that workers can strike for, and enforce, higher wages without limit. There is no legal mechanism to establish a ceiling on wage-demands, and impose it on the workers.

2. It has now been established that the government can, by maneuvers of the Justice Department, force the steel companies to meet these demands, without allowing them to increase their product-price.

3. Therefore, by the whipsaw effect produced, the workers on one side, and the government on the other, can drive the steel industry—*or any and all others*—into bankruptcy.

Now consider the consequences if the steel industry is driven into bankruptcy.

Obviously, the United States cannot exist without a functioning steel industry; the nation cannot permit the industry to cease operations. The only way out of that dilemma is a simple, and well-worn technique—the government provides various obvious and/or subtle subsidies to keep the industry in operation, while it is operating at a heavy net loss.

An excellent example of that sort of thing is the maritime industry today. No United States shipping firm can operate without going into immediate bankruptcy, because of the extremely high wage-levels of U.S. maritime workers, and the high costs of U.S. shipbuilding yards. Foreign shipping firms get all the business, because of lower operating costs, unless the U.S. government pays the U.S. firms to stay in business. It's done by paying most of the costs of ship-buying, and paying subsidies in a series of complicated and not-too-subtle ways.

So . . . everybody's happy? The maritime workers get wages that represent a fuel-value greater than their product-value, the difference being made up by the government. The only ones who suffer for that, of course, are the rest of the people of the nation, who have to pay that difference through taxes.

The maritime workers have, then, succeeded in doing what they believe is just—getting a larger share of the national wealth. Actually, getting more than their fair share, for that share cannot be paid for out of the value of their product.

The foreseeable future of the steel industry will be of the same order. With product-price held down by government action, while wage costs rise under union action, the industry will be forced into bankruptcy. Being vital to the nation, the government will be forced to subsidize it, so it can remain operative, while still losing millions of dollars a day.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Now notice that what is, in fact, evolving is a totally new form, or philosophy, of government and economy. The Socialist system envisions national *ownership* of productive industry, as in the U.S.S.R.

In the United States, something new and not-formulated-in-textbooks is developing. Give it any title you like, but it has the following peculiarities:

1. The productive enterprises remain under private *ownership.*

2. They are, however, under government *possession.*

3. They are *not nationalized,* for reason of maximum political expediency.

I'm distinguishing between "ownership" and "possession" above in a very definite, and definable way that depends on some of the second-definition meanings of the words, but no other English words are suitable.

By "possession" I'm referring to the implications of the term as used in "demoniac possession"; the demon, hypothetically, controlled and directed the being of the individual possessed, but did not *own* him. A slave was *owned,* but a man possessed was not the property of the demon. In ownership, the owner is held responsible for the acts of his slave, and can be called to account. The possessing demon could not be called to account; it was the poor victim who was possessed, therefore, that got it in the neck . . . or the heart, with an oaken stake driven through at the crossroads.

Possession implies the ability to control, without the responsibility of ownership.

When an industry is government possessed, but privately owned, you can sue the private owners, but not the government which, by its control, brought about the actions.

Such a situation allows the political rulers to have power to act—but provides them with a layer of insulation against responsibility for their actions.

Labor unions will fight most valiantly against nationalization of an industry . . . for a most bodaciously good reason. Postal employees, policemen, Army, Navy, and Air Force men, teachers, and other Civil Service employees *are not permitted to* strike.

The railroads are in a horrible condition; they've been bankrupt for decades, now, and the bankruptcy is getting deeper. Subsidies have been inadequate, and it's been hard for a politician to handle the problem, because any damn fool can see how wealthy the railroads are. Obviously they've got a lot of money, and can be forced to give up some of their millions to their poor workers. You can see all those big, expensive Diesel engines and trains and bridges and rails they own—they're wealthy!

Only, of course, practically all railroad equipment these days carries neat little bronze plaques saying something like: "This equipment owned by the Nth National Bank, of Extown, under lease to the Broke, Down & Out Railroad."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

They are possessed. They are forced to run services that lose money, and to pay wages based on featherbedding practices. When a railroad in New Jersey bought some new, modern equipment, departing from the traditional design developed some sixty years ago, and approximating the riding qualities of a modern motor coach . . . the State supertaxed it as "luxury equipment."

Nobody wants the railroads nationalized! Certainly the unions don't; it would mean that their members became Civil Service employees, denied the right to strike. The politicians don't; it would mean they'd have unions mad at them, and that the public would hold them—instead of the private owners—responsible for poor service, poor equipment, and archaic methods of doing things.

What the nation is working into is *not* Socialism, where authority and responsibility are alike in the hands of the politcal leaders, but a more subtle system of operation.

Instead of government *ownership* under Socialism, we will have government *possession* and private *ownership.*

When the steel industry has been brought entirely under government possession—but not ownership!—and is operating on a subsidy system, the situation will be roughly this:

1. Labor costs will be pushed up so high that the fuel-value consumed by the industry exceeds massively their product-value.

2. The steel workers will, then, be getting more fuel-value input than the value of their product—they will be getting more than their due share of the national economy.

3. The subsidy the government pays the steel workers will, then, be a tax on the non-steelworker groups. Obviously, if one group is getting more than their due share, other groups must be getting less, to make up for it.

4. The way out of that, of course, is for the other groups to have their industry go under government possession, and government subsidy, and raise their wages to a more-than-due level also.

The net, long-term, over-all effect will, of course, be the destruction of capital values; political power, not economic power, will be the only value. Human wills and opinions will, at last, be given their "proper" God-like power to decide what shall be, with mere objective reality at last subjugated to the glory of human opinion.

My reason for holding that President Kennedy's great victory over the steel industry was a disasterous defeat for the United States is that the United States does not rule the world, and is rapidly moving from the #1 power down to #3.

The European Common Market—the vastly overdue United States of Europe in development—is not handicapping itself with government-possession-insulated-by private ownership. For a time, the United States

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

can control the economy within our national borders—but German steel producers can, already, lay down sheet steel on Great Lakes ports as cheaply as Pittsburgh can. And this means they can lay down sheet steel in Venezuela, or Chile, or Nigeria more cheaply.

Russia is too busy building her own economic structures to export steel very heavily as yet—but they'll be able to compete, too.

We won't, save by the same technique American shipping lines compete—government subsidy.

The United States is already losing gold—i.e., running behind in the world value system. It means, simply, that the U.S. is consuming more fuel-values than it is generating product-values.

The only possible way of reversing that situation, while maintaining a high consumer-goods economy, is by introducing more information per gram of material—only information can *create* wealth. Only information can generate wealth *without taking it from anyone else.*

Unless Science is freed to create and apply its creations, to devise new methods and apply those new methods—the United States is going to go bankrupt.

And there is no world government that will bail us out because we are so necessary to the success of the world—no world government to give us subsidies.

Should a feckless loafer, who expended an immense inheritance on buying geegaws and amusement, be subsidized? Should a nation that refuses to accept responsibility for its consumption-vs.-product be helped to continue the wasting process? Should an industry that refuses to use modern, efficient methods be bailed out and kept running?

Oh, well . . . it's unimportant to decide whether it *should* or not, of course.

It won't be.

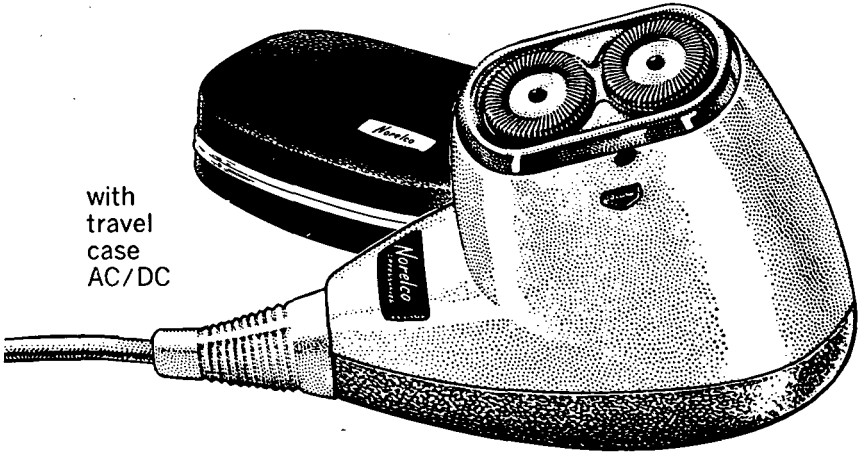
The Editor

"Highly organized research
is guaranteed to do one thing—produce nothing new.
Because you organize on the basis
of what you know, and you make sure you find out
what you organized to find."

SIR HARRIE MASSEY
Chairman of the Preparatory Commission for European Space Research Organization.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Discover new shaving comfort!



New Norelco® 'flip-top' SPEEDSHAVER
with Rotary Blades

This Spring, discover the smooth shaving comfort you get with a new Norelco 'flip-top' Speedshaver. Self-sharpening rotary blades stroke off whiskers clean and close. And . . . no nicks, no irritation.

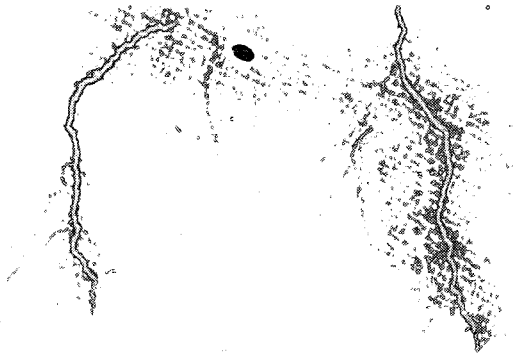
Norelco's exclusive 'flip-top' feature offers pushbutton cleaning. The rugged brush type motor is self-lubricating, runs on 110 volts, AC or DC.

Get the world's largest selling electric shaver — or hint for a Norelco 'flip-top' Speedshaver for your next birthday or other gift occasion.

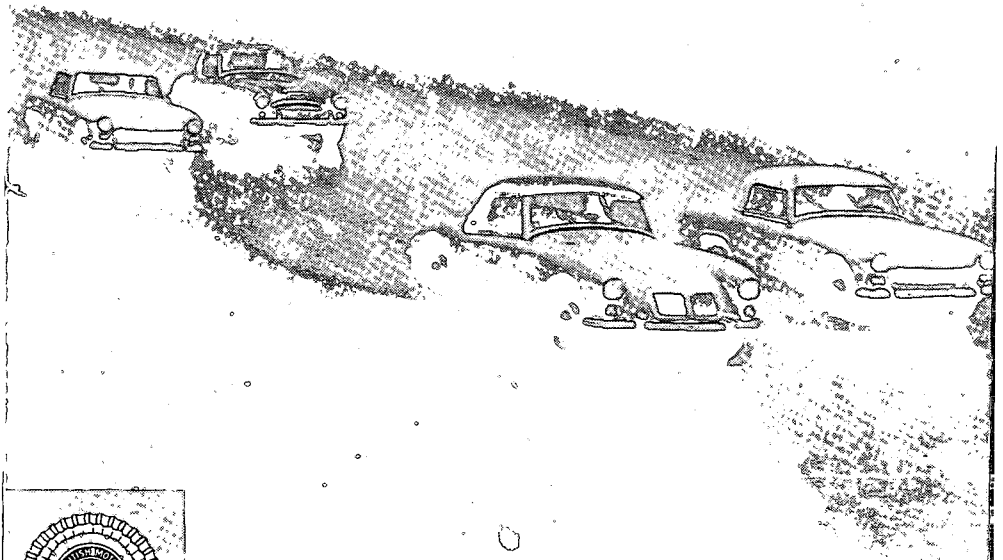
North American Philips Company, Inc.
100 East 42nd Street, New York 17, N.Y.

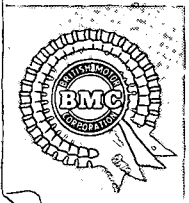
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Stormy weather...



makes no difference.
These new BMC sports cars
storm right along at lightning pace.
All of them—and notice
the range you're looking at.
BMC offers more different models,
color combinations, power and
performance choice than all other
sports car builders combined.
Price tags start with the very
lowest for any true sports car!
Wide choice among options, too—
these new detachable hard tops,
for instance, weather beaters all of 'am.
Get in the splash.
Go see your nearby BMC dealer—
ask to take one of these windswept
beauties out for a trial run—
forecast: sheer fun,
rain or shine.





MG MIDGET / MGA 1600 Mk. II / AUSTIN HEALEY 3000 Mk. II / SPRITE

Going abroad? Have a BMC car meet you on arrival. Write for details.

Products of The British Motor Corporation, Ltd., makers of MG, Austin Healey, Sprite, Morris and Austin cars. Represented in the United States by Hambro Automotive Corporation, 27 West 57th Street, New York 19, N. Y.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED